The Builder.

VOL. XX.—No. 1032.

Sanitary and Social Jottings in Manchester.

BAD as things now are in the districts suffering from the Cotton famine (not wholly due, by the way, to the civil war at this time raging in America), worse times,—frightful times,—must be looked for; and it behoves all to do what they may in their specialty to lessen their horrors and save human life. It is not easy, without long and very careful study, to grasp the present social and sanitary condition of a great centre of British industry like Manchester, where now unfortunately the labours of the workers are to a large extent suspended; but it is evident to a more casual inquirer that measures are needed which not only in the time of the present distress, but in future years, will lessen the chance of sickness, and lengthen life. Many changes are going forward there which show the good results of sanitary improvement. For instance, in Manchester, in 1858, the death-rate was 36 in the 1,000; in 1859 it became reduced to 30¾; and in 1860 to 30½; but even the last figures are discreditable enough. Respecting this, Mr. William Royston, in his report to the Manchester and Salford Sanitary Association, says,—"We frequently contrast Manchester with Liverpool, and say with some complacency that, bad as Manchester is, Liverpool is worse; but if we refer to the constitution of both districts, we shall find that Liverpool is all urban, but that Manchester has twelve other townships incorporated with it, all more or less sub-urban: this connexion has reduced the rate 2¾ per cent. per 1,000 during the last twenty years." But it is also to be noticed that it is not correct to say that the death-rate of Liverpool is greater than that of Manchester, for in 1858 the deaths in Liverpool were 36 in the 1,000; in 1859, 30½; and in 1860, 28½. The excessive mortality of both Manchester and Liverpool is cause for much anxiety, and shows the need of increased exertions, and of better plans of house construction not only in the old portion, but also in the new parts of both these important places.

In some respects the present condition of Manchester very much resembles the present state of London. In the old city the dwellings are rapidly giving way to substantial structures, some for business purposes and others for the use of various institutions; and new streets are rapidly stretching to Salford, Broughton, Cheetham, Newton, Ardwick, Chalton, Hulme, Salford Pendleton, and elsewhere. Few business men now remain in the town, but live at a distance from it of six, seven, or even more miles. Nor is this to be wondered at when we see the murky atmosphere which coats everything with smoke, even at a time when many manufactories are idle. For the last two or three mornings there has been a heavy fog, and the thickly-loaded air, which causes headache and much unpleasantness to strangers, is worse than we remember to have noticed it at similar times in the metropolis; and we are told that this smoke spreads for many miles according to the direction of the wind, blackening windows and soiling clothes; and this is not the worst, for over Manchester hangs a heavy and oppressive air, which is sufficient to account for much sickness and death.

Without going into details respecting the antiquity and growth of Manchester, the reader may be reminded that the Romans invaded Lancashire, and erected a fort or castle on a space of ground at the southern extremity of the town. This spot still retains the name of Castle-field or Camp-field. About the year of our era 627, the Saxons regained possession of the ancient Mancunium, and the town began to be reformed, and was placed under the dominion of a lord or thane, who, it is supposed, had his habitation on the site of the College. In the year 446 Manchester was made a parish. In the tenth century it was fortified by Edward, King of the Mercians; and in Domesday-Book it is so mentioned under the name of "Mancestre." In the year 1301 the town was made a free borough; and in 1422 the present cathedral was built: while about the same time the College was founded. In the reign of Henry VIII. Leland describes Manchester as being "one of the fairest and best-built towns in Lancashire;" and about this time it became noted for certain cloths, manufactured here, and called "Manchester cottons."

In 1563 Manchester was visited by "a sore sickness;" this was succeeded, twenty years afterwards, by a famine, which prevailed throughout the whole of Lancashire. In 1651 a library was founded by Humphrey Cheetham; and fourteen years afterwards the Cheetham Hospital was established. About this time Manchester was described as being one mile in length, with good streets and buildings, and the people more industrious than in other parts of England. In 1722 a post-office was first established in Manchester, and letters were then despatched three times a week. In 1758 the Duke of Bridgwater, with the assistance of Brindley, commenced making his canal, which was opened in 1761; and in 1787 the first post-coach was established: it left Manchester at four o'clock in the morning, and was expected to arrive at its destination on the next evening.

In 1832 the cholera appeared in Manchester. It commenced in May; continued until January, 1833, and made great havoc amongst the working classes. Nor is this to be wondered at; for, notwithstanding the cholera deaths, the Statistical Society says that, in 1836, out of 169,000 inhabitants of Manchester and Salford, 12,500 lived in lodging-houses, and more than 700 slept in cellars with the bad tenants of these places. According to the police report for 1843, there were within the police limits of Manchester (population 235,139) 5,529 cellars, of which 4,445 were occupied by 18,217 persons, with only 6,950 beds. In the cholera year (1832), a report stated that of 687 streets 284 were not paved, 53 only partially paved; 112 were ill-ventilated, and 352 contained heaps of refuse and stagnant pools; 2,565 houses were infected to such a degree as to require immediate whitewashing; 960 required repair; 452 were ill-ventilated, and 2,221 were reported as wanting privies. Notwithstanding that improvements have been made and many of the cellars closed, there are still in the old parts of Manchester numbers of noisome underground places, damp and ill-ventilated, which are occupied by a considerable population. The walls and ground are damp, the windows of the smallest dimensions, and the door is scarcely sufficient to admit the entrance of a man or woman of ordinary size. To add to the mischief, there is nothing but surface-drainage, and most of the houses have no means of thorough ventilation. For the chief part they are very small, some being not more than 6 feet in height from the floor to the ceiling. The closet accommodation is very unsatisfactory, in several instances there being only one closet for fifteen or sixteen houses, which are crowded with people. In all cases the soil of the closets is allowed to remain until it can be carried away during the night-time by the scavengers. But it is not only in connexion with these old-fashioned houses that this abominable plan is in use, but the same thing is allowed to be continued in newer neighbourhoods; and it is chiefly to this that the unpleasant odour of parts of Manchester is to be attributed. It is admitted that, with proper management, this town might be well drained by the streams which flow throughout the neighbourhood; but then comes the question of utilizing the sewage, and preventing the dangerous pollution of the water-courses.* This is, however, but a secondary consideration in comparison with the saving of life. Complaints are made here of the large mortality of children. On this point we have before remarked; and, while acknowledging that there is great want of management on the part of the mothers, much of this evil is to be attributed to the sanitary conditions to which we have referred. The water-supply is understood to be constant. There are but few casks or cisterns, but the water can be turned on by means of taps; and in eight cases out of ten the people endeavour to keep their houses and back-yards clean. The bad state of the pavement interferes with this. There is but little provision for drying clothes; so the people are obliged to take them to open places in the town, where they can have accommodation on payment of a small sum.

In many of the poorer kinds of houses there are small and inconvenient shops, which greatly require care; for often the family live in a close apartment at the back, which is without any window or other kind of ventilation. The cesspool and the dust are generally in a confined situation,—in some instances the soil is retained in boxes, which can be carried away by the scavengers. A contrivance of this kind was in use in a large school, but the smell was so bad in the closets and passages that it has been wisely determined to communicate with one of the large drains which pass through most parts of the town, but which are chiefly neglected. In schools here the drainage is frequently deficient. There should be well-trapped water-closets in those situations, and a separate office for boys and girls; playgrounds are also wanted in some Manchester schools.

In buildings of considerable consequence here there has been trouble to get proper ventilation. In the Public Free Library, in Camp Field, a large expense has been recently incurred, and matters are now more satisfactory than they were. This is a splendid institution, supported by a small rate levied on the whole of Manchester, which amounts to about 4,000*l.* a year. This building is of great extent, and consists of an apartment on the ground-floor, and another above it. To the lower room any one is admitted. Here there usually come each day more than 3,000 young men and others, for the purpose of reading the newspapers, nearly seventy of the leading periodicals, and a large collection of standard books. Volumes are lent to readers at home, and in this way 480,365 loans of books were made in the last year. In the upper room there is a large collection of specifications of patents, which is much consulted. A total of upwards of 30,000 of these specifications has been examined, the chief part being in connexion with textile manufactures. Besides the chief library there are branches at Hulme, Ancoats, Ardwick, and Rochdale-road. This establishment must work great good; and it is to be regretted that we have nothing of this kind on the same liberal scale in the metropolis. In other ways a disposition in Manchester to do liberal things is shown, and we have visited with gratification some of the sewing schools, which are the chief means of feeding a large number of young girls and women. These are also useful in keeping them employed and out of the way of mischief. Many will receive an amount

* At the present time, the river Irwell is in a bad state

of useful instruction in needle-work, which they would not have had except for the calamity which has come upon this county. The rooms in which these females are gathered are fitted up for, it is hoped, only a temporary occasion; but care should be taken to ventilate them: one of these places we found especially close. Amongst the people a more than common amount of intelligence is apparent, and this we trust will eventually lead to better management.

Accident leads us across the Irwell river, which separates Manchester from Salford, where a thoroughfare called Greengate continues to the district of St. Matthias, the population of which is over 8,000.

Along the main street, towards the Broughton-road, on each side, are numerous narrow courts, in which, for the most part, are small and very unwholesome houses. The entrance to Ravald's-court is not more than 3 feet wide, by about 6 feet in height; and others are not much better in this respect. At the back of some are large buildings, which prevent the circulation of fresh air,—an unfortunate circumstance, particularly when we consider that there are here the same noisome ash-pits and closets to which we have already referred.

Most of the houses in the main street are seemingly about a hundred years old; some much more; but near the church of St. Matthias, which stands at the corner of "Paradise" (a spot which, like some others, belies its name), are numerous streets of small houses, much resembling a large portion of the property which has been planted on the ground at Bermondsey, parts of Bethnal-green, and other metropolitan neighbourhoods. Some of these houses appear to be about fifteen or twenty years old, and have all the faults of the small dwellings of this date; and here is also found the usual want of closet accommodation. Another evil is that the greater number of the houses are built back to back. There are no gardens in front; nor in many cases are there yards behind. It is to be remarked that in this and most other parts of Manchester there is not a bit of greenery to be seen, and very few attempts are made to grow window-plants: the general aspect is dingy and depressing in the extreme.

A few years since, a portion of St. Matthias's district, called the "Adelphi," and some other parts, had a most notorious character. There were dwelling about, a number of very poor Irish people, and also many thieves and disreputable persons, who were most troublesome to the police. Certain houses were infested with these characters, and idle boys and youths assembled in the open spaces of ground for the purpose of gambling and playing; but when the present rector came, a few years since, he set vigorously about effecting some reform. Both this gentleman and his assistants began to move amongst the people, and they, as well as the Scripture reader, went frequently from house to house; the clergymen themselves going, after church service on the Sunday evenings, to the crowded public-houses, and in the tap-rooms distributing tracts and offering advice to the men. All this was attended with such advantage, that it was determined to erect a building for a working-men's club, and a plain but substantial structure has been raised for this purpose in the midst of what was once the very worst part of the district. Here are reading-rooms, which at night are well warmed and lighted. There is a library, which contains about 1,000 well-chosen volumes, with newspapers and periodicals; there are also a lavatory and other convenience provided; besides these there is an "*amusement room*," in which are draught and chess boards, and opportunities for playing other games; there is also a lecture-room, in which various friends to the institution give popular lectures, which are well attended.

Soon after the opening of this place, a deputation of workmen waited upon the rector to ask him if he would have any objection to such of them as wished smoking their pipes when they came to the club. Thinking it better to allow this, and so get the men here instead of driving them to the ale-shop, the rector had a smoking-room prepared near the top of the house, to which they may take their pipes and books. On the roof of the building are fixed seats and telescopes, so that those who feel so disposed, in summer time, may get a view of the surrounding scenery; which, however, is not of the most tempting description.

Such an example as has been set here by the rector of the district is so worthy of imitation, that in the hope that it may be useful, we give the rules of the club, which consists of more than 200 members.

The management is under the president (the rector), secretary, treasurer, and a committee, one half of whom shall be *working men*. No one under eighteen years of age is to be admitted a member. The club to be open to working men of every class. The subscription, a penny a week, payable in advance. Any person wishing to enter the club shall propose himself to the committee one week, and be admitted the next; one or more of the committee to be present at the club-house every Monday evening, to receive proposals and enrol new members. Any member shall forfeit his privilege until the subscription be paid; but should circumstances prevent his attendance for three months, he may be re-admitted as a new member. A register to be kept for the entry of members' names and subscriptions. The club-house to be opened every evening at six o'clock, and closed at ten; and the committee to meet once a month for the transaction of business.

Formerly, in St. Matthias's district, a strong force of police was needed, and decent wayfarers could scarcely get through the place without insult: now it is orderly, and a policeman is scarcely ever seen. The district has been tamed by kindness and well-directed exertion.

We must break off for the present; but would first say one word to those who are exerting themselves to obtain funds to supply the nearly starving multitude, thrown out of work, partly by the want of cotton, and partly by previous over-production and the stoppage of demand. It is not merely money and clothes and occupation that are needed at the present moment, but a vigilant and enlightened supervision, so that those injurious conditions which are known, especially under circumstances of deprivation, to produce fevers and other illnesses, may be removed or ameliorated. We shall endeavour hereafter to point to some of the special blots and dangers that exist in the stricken districts, anxious to bring attention to bear on evils which, if not removed, will unquestionably increase immensely the accumulating miseries of the coming winter. We use the telling words of another below, to aid in moving the generous heart of the country in the same direction.

THE HEROES OF THE LOOM AND TRENCH.

A FEW evenings ago the officers of the Royal Artillery gave some theatrical performances at Woolwich in aid of the Lancashire Relief Fund, and prefaced them with an admirable prologue, which they owed to the kindness of an accomplished writer. The public will thank us for giving it a wider circulation; and we shall be surprised if its touching words do not materially aid in awakening that sympathy and evoking that aid which our nobly-enduring countrymen and countrywomen in the North eminently need and deserve:—

"When threaten'd, England's honour or repose,
The British soldier well his duty knows;
To mount, to march, to fight, to fall, to die,
But never weakly yield, nor basely fly.
We boast not this—all who deserve to bear
The name of soldier, so would do and dare;
But claim with honourable pride we may,
The courage to *endure* and to *obey*.
Need you the proof? 'Tis not in battles won,
The shatter'd colours, nor the captured gun;
Not in the charge, though Balaklava's vale,
Of hopeless valour, saw the sanguine trail!
Nor in the shock—though Inkermann's dark hill
Could tell of iron nerve, and iron will!
'Tis in the frozen trench,—the fever'd camp,—
The famish'd fort,—the pestilential swamp,—
Where war is stripped of all its pomp and pride,
The metal of the manly heart is tried!
Who can forget? Sure none of British strain,
The ship that founder'd in the Indian main?*
Upon whose deck, steady as on parade,
Their last command the noble band obey'd;
And to the grave,—of all but their renown,—
Shoulder to shoulder, in their ranks went down.
If we, as soldiers, glory in such deed,
Must we not honour those in bitter need,
Who, with like courage, face *their* fearful doom?
The humble heroes of the Mill and Loom!
No frenzied outbreak of despairing men
Scares the dull town,—disturbs the quiet glen;
No wail of suffering woman renders less
Their brave endurance of prolong'd distress!
Of all that to privation lends a smart,—
Of hope deferr'd that maketh sick the heart!
No trumpet cheers them in their struggle hard,
No cross, no clasp, their valour will reward:
Their only prayer throughout this trial dread,
Again to labour for their daily bread.
Pale, patient, mute, around the factory door,
Which opens to the living stream no more;
In groups they stand, or wandering o'er the plain,
Cull herbs which yield no medicine for *their* pain!
Brave fellow warriors! honour ye we do,
And muster here to night to help you too!
Receive it as the soldier's tribute paid
To gallant conduct—not as alms—but aid.
Would we could more: but what we can we will.
Friends! for our cause forgive our want of skill.
It is a cause—if e'er one was—demands
The best support of English hearts and hands.

J. R. PLANCHÉ.

WORKS IN PRECIOUS METALS, JEWELRY, &c., IN THE EXHIBITION.

JURY REPORT.

THE jury of Class XXXIII. preface their awards with the following observations:—

This class contains the works of the jeweller, goldsmith and silversmith, including plated, electro- and galvano-plastic works, cameos, and enamels. Jewelry is subdivided into real and imitation; and in like manner gold work into *doublé* and merely gilt. The *doublé* industry is principally carried on in Paris, and is described in the award to A. F. Savard (*France*, 3,241).†

Works in this class, by reason of the value and richness of the materials employed, are highly interesting and very attractive. Yet the richness of this industry ought not exclusively to occupy the attention: the beauty of the objects exhibited is due rather to the perfection of their workmanship than to the value of the materials of which they are composed: the merit of the work should occupy attention rather than the dazzling richness of the collections.

In jewelry the first work to be noticed is that of the lapidary, upon whose skill in cutting and polishing the stone so much of its beauty depends. The jeweller, by his delicate work, sets the stones so cut to the best advantage; combining, by exquisite workmanship, delicacy and lightness with necessary solidity.

In goldsmith's work gold, silver, and other metals take the first place, and the stone becomes secondary. This handicraft has no limits: the workman possessed of good taste, by the help of enamel and precious stones, may produce works the most refined and beautiful of which art is capable.

To the silversmith's work the same remarks apply: the beauty of the metal employed renders every object attractive, but its merit and value, beyond that of the mere metal, depend entirely upon the art bestowed upon its production.

In plated goods produced by the old process of uniting plates of silver and copper by heat, the employment of art is limited to form, and pewter solder is required to bring on any ornamentation. But there is no limit to the art which may be employed in the production of plated goods by the new process of electro deposit; and for articles of daily use it is now found to be quite as durable as the old process. It also possesses this great advantage, that if after long use the silver should be

* The *Birkenhead*, lost off Cape of Good Hope, 1852.

† "Jewelry in *doublé d'or*, of which Parisian industry claims the invention, requires skilful workmanship: the metal used is composed of copper plate and a layer of gold, the thickness of the latter being to that of the former as 1 : 11, and the adhesion is produced by means of solder. The metal is reduced to the required thickness by flattening or drawing; and in working it, great care and mechanical contrivance become necessary in order to keep the surfaces together. The efforts made by Mr. Savard to give to this industry all the perfection and extension of which it is susceptible, are worthy of praise. The *doublé d'or* dates from 1830, when it was received with very great mistrust by the French Government: it was only after the loss of several law-suits that it consented to this manufacture, and assigned to it a particular mark on which is inscribed the word 'doublé.' Thus authorized, the doublé became developed by the application of stamping upon dies of steel which Mr. Savard introduced. This new system in the manufacturing completed the perfection, and rendered the price of fashion much less expensive."

worn away in some prominent parts, the article being composed of German silver or white metal, the unsightliness of copper is avoided. Copper deposits are now only used in cases of reproduction.

At the Exhibition of 1851 Messrs. Elkington & Co. first exhibited works plated by this process: it was then treated as a new and untried discovery, and the jury spoke hesitatingly as to those advantages now so generally admitted; and for the successful result we are much indebted to the enterprise and liberality of Messrs. Elkington, who held the patent, and yet permitted a number of competitors by granting licenses. Their enterprise was rewarded by a Council Medal in 1851, and in Paris, in 1855, by the Medal of Honour.

The galvano-plastic process is in principle the same as electro deposit: it was first exhibited by Messrs. Elkington in 1851, and is described in the award made to C. Christofle (*France*, 3,204).*

The art of cameo cutting was formerly almost exclusively carried on in Rome, but there are now many artists in Paris and London who successfully compete with those of Rome.

Enamelling admits of the highest art, and is now very generally applied to gold, silver, and copper. Precious stones and pearls can be imitated, and very good specimens of imitation are exhibited.

It is highly gratifying to the jury, after a most careful and attentive examination of all the objects exhibited in this class, to acknowledge and report very decided and considerable progress in art since 1851: outlines are improved, and greater attention given to details of workmanship. They are also glad to observe that England, with admirable emulation, has profited by the works of France, and now takes a prominent position.

The jury, in accordance with their instructions, have awarded Medals and Honourable Mentions for merit, without any distinction of degree, to the exhibitors of the various countries represented; and have attached to each award a statement of the grounds upon which it is made: these observations having been made with care, will show what, in their estimation, are the merits of the works, artistic or otherwise.

England is chiefly represented by some eminent houses which have large capital at their command; very few of these firms are manufacturers: when they are not manufacturers their orders are given to others, and their productions are deficient in those tasteful ideas which result from constant and immediate contact with men of educated tastes. Thus too often in England the ideas are those of the manufacturer, guided only by the trader or his assistant, when they should be those of the educated classes themselves. The trader should be a manufacturer possessed of taste; and, as much as possible, should draw his inspirations from his customers: in fact, the goldsmith and jeweller should combine a knowledge of architecture and sculpture, and be well skilled in archæology, that he may not confound the styles of different periods. Great commendation is, however, due to several of the first English manufacturers, who, free from all prejudice of country, have, at great cost to themselves, and without possibility of immediate reward, nobly engaged the highest talent they could secure.

The awards, and especially the observations attached thereto, will record the opinions of the jurors as to the merits of the different exhibitors; but the jury feel it is their duty to mention the names of two eminent manufacturing firms, Messrs. Elkington & Co., and Messrs. Hunt & Roskell, who are precluded from award, members of their firms having had the honour conferred upon them of being elected jurors; and the highly artistic character of the works exhibited by both these firms fully justifies the choice which has been made. They each employ a large staff of artists; and, if any proof were wanting of the excellence of their works, it is found in the fact that two artists from each house have had medals conferred upon them.

Some of the works of Messrs. Elkington & Co. are described in the awards to their artists, Ladeuil Morel and W. A. Willms. Those of Hunt & Roskell in the awards to Antoine Vechte and H. H. Armstead. The evident object of these houses has been utility combined with the highest possible artistic excellence: they have endeavoured with success to make the object, whether an ornament for the table, a testimonial, or a memorial, valuable, not only for the metal of which it is formed, but also for the workmanship with which it is adorned; and in so doing they have carried out the intentions which have actuated all the most renowned workers in the precious metals: thus their works compare with the best produced in any age or country.

In France the industry of this class possesses a different feature to that of England. There the manufacturer has not so large a capital at command; therefore the sacrifice is not so much in money as in labour, intelligence, and time. The traders being usually manufacturers, have the advantage of intercourse with men of taste, and meet with continual inspiration at every step without the interference of a mediator.

The Zollverein exhibition, not wanting in taste, takes a commercial position. The exhibitors of Pforzheim jewelry have arrived at great economy of labour, and the low standard of gold (fourteen carats) enables them to compete with the cheaper manufacturers of Paris: several thousands of hands are employed in their works.

Prussia exhibits some very important works in silver, objects given to the Crown Prince and Princess Royal of England on the occasion of their marriage. The merit of these works is very great.

Bavaria exhibits heraldic engravings by an artist of Munich, which merit commendation, and have been rewarded by a medal.

Frankfort and Hesse Cassel have made great progress.

Würtemberg is well represented.

Belgium has exhibited very little.

The Netherlands exhibit some silver and gold work: the best portion of their exhibition is that of the diamonds by Mr. Coster.

Norway and Sweden exhibit creditable works.

Denmark shines like a star amidst the industry of the north. She has found in the treasures of her museums types of Runic jewels of remarkable beauty, and restored them truthfully: her works prove that taste and design are cultivated and encouraged at Copenhagen.

Greece is not represented.

The Ionian Islands exhibit some few works.

Spain, if we except some beautiful damascene, exhibits but little: this with all her opportunities is to be lamented.

Brazil exhibits a few articles of skilful workmanship.

Russia is admirably represented: the works are of a highly artistic character, and possess a marked individuality.

Switzerland does not exhibit any silver work. In jewelry, engraving, and enamelling her position is well maintained.

Austria exhibits some well executed jewelry, and preserves her superiority in the cutting and mounting of small garnets.

Rome exhibits some very beautiful and highly artistic cameos.

Italy, in the collection of Signor Castellani, restores to us the most beautiful jewels of the Greek, Etruscan, Roman, and Cinque Cento epochs, from existing originals.

Egypt, by his Highness the Viceroy, contributes a collection of antiquities of the highest possible interest.

[Of these antiquities the jury say elsewhere,—This collection, contributed by his Highness from his new museum, possesses great archæological interest: many of the objects composing it exhibit a far higher degree of refinement in art than has been supposed to exist at the remote period assigned to them. These antiquities form part of the discoveries of Mr. Auguste Mariette; and, with the exception of a few of the rings and two ear-pendants, were found at Thebes on the mummy of Queen Aah-Hotep, who lived about 1500 B.C. They consist of a poniard with a gold blade, upon which is engraved the combat of a lion and bull: the cartouch is that of King Amosis, son of the queen and first king of the eighteenth dynasty. A diadem, on each side of which are couching sphinxes. A hatchet, the symbol of divinity: on the blade is a representation of Amosis immolating a barbarian: the whole legend of the same king is inscribed on the handle. A square pectoral or brooch, which has the appearance of being enamelled, but which is in reality inlaid with coloured stones. King Amosis stands on a bark between two divinities, who are pouring over him the waters of purification. A decoration, formed of three bees in massive gold. A gold chain of woven pattern, 3 feet long, from which is suspended a scarabæus. A bracelet in massive gold, ornamented with repoussé figures reposing on a ground of lapis lazuli, with the figure of Amosis. A boat in massive gold, mounted on four wheels of bronze. This relic was deposited with the mummy of the queen, a symbol of the deportation of the soul to its final resting-place. The rowers are of silver: at the prow is engraved the cartouch of King Rameses, the husband of Aah-Hotep, and father of Amosis. These several relics present no trace of enamel: the colours are produced by the inlaying of stones, such as turquoises, carnelians, and lapis lazuli. The two large ear-pendants, in the form of discs, bear the cartouch of Rameses of the twentieth dynasty, and were found at Abydos, near the great temple discovered by Mr. Mariette. In the collection are also other objects of great beauty and interest.]

Japan, for the exhibition of which country we are entirely indebted to Sir R. Alcock, K.C.B., contributes a surprisingly interesting collection.

India is well represented by objects of great interest.

[Some observations on Indian enamelling are afterwards made with reference to an award to the Rajah of Jeypore for an enamelled gold spice-box. This is an exquisite specimen of the Indian art of enamelling, and peculiar to the city of Jeypore. The process of colouring is maintained a secret amongst the workers, and descends in their families from one generation to another. The mode in which the enamel is produced is of the most primitive character. The furnace employed consists of a circular hole in the earth of about 1½ foot in diameter, and a passage to it below for the fuel and air. Over this is placed a thin hemisphere, also built of earth, in which are five holes for the draught, and under which, in the inside, are placed small earthen vessels for holding the fused glass, over the surface of which the flame plays as it passes out of the air-holes. The glass is made in these earthen vessels; and when fused, the colouring substances are added. The whole is then allowed to cool, and in this state is kept for use. Only pure silver or gold articles are enamelled. The best enamel is only applied on gold, which must be free from alloy. The pattern required is first carved out. The enamel having been ground to an impalpable powder and made into a paste with water, is placed on the pattern so carved. The article is then placed in the furnace until the enamel fuses. As soon as removed the workmen exert the full power of their lungs in blowing upon it as quickly and as violently as possible. The hardest colours are first placed in the furnace and fused, and then those which melt more easily. Afterwards the surface is ground and polished.

The dark and light blues are the only colours respecting which positive information exists. They are made from an oxide of cobalt, which is found in the copper mines of Khetree in Jeypore, where it occurs between the veins of copper.]

Ceylon exhibits creditable work.

New South Wales, Australia, Victoria, exhibit well, and show a stage of development such as could scarcely have been anticipated.

It only remains for the jurors, in concluding their task, which has been one of extreme gratification, to express the great pleasure they have felt at being privileged to report on works showing so much advancement; and to urge upon exhibitors to continue in the path which they have entered. It is by their aid that International Exhibitions not only mark the advance of art and science, but also cement the friendship of nations, and call forth their best feelings as competitors.

* "The table and tea-service in galvano-plastic are examples of the great advantages obtainable by this process in economy of production: they possess solidity and neatness of execution. The same remark applies to the collection of artistic ornaments used in bronze furniture, locks, &c. The "Prima vera de la Vita" statue of Mr. Maillet, executed in galvano-plastic, gilt and silvered; and the "Fawn and Goat," by Mr. Fesquet, in bronze, are admirable specimens of galvano deposit, which has become developed since the first International Exhibition, and the merit of which is now generally acknowledged. These figures are made of two shells, obtained from moulds in gutta-percha, in which the metal is deposited: a single soldering around is sufficient to unite the two parts: thus the production of the artist is stereotyped."

THE PAST AND FUTURE INTERNATIONAL EXHIBITIONS.*

It is needless to remind our readers that the Exhibition of 1851 was nearly being shipwrecked by the delay about the settlement of the preliminaries for the commencement of the building. The course of these arrangements, during which our profession was appealed to, was lately referred to in a very prominent manner. We are surprised that those who knew the facts, should have forgotten them so far as to misrepresent them. The appeal to architects had more than the usual defects of such appeals, responded to in what are called architects' competitions, arrangements

* See page 797, *ante*:—"Results of 'The Exhibition.'"

where the acknowledged difficulty lies in framing terms of the advertisement or "instructions," in getting those whose time is valuable to respond at all, in finding men competent as judges, and in procuring from them the devotion of time necessary; and in contending against that embarrassment and distortion of judgment, which unquestionably are incidental to a competition in which the number of designs is considerable. Before saying that the appeal failed, it would be right to call to mind whether a proper appeal was ever made. All that we need say now, is that no pecuniary inducement was offered; whilst we recollect, that so far from the designs sent in being less meritorious than might have been expected, several competitors had claims to have furnished the idea which germinated in the "palace" of iron and glass. The proceeding, next, upon the rejection of these designs, which was taken by a committee composed both of architects and engineers, is generally understood to have fallen through, from the difficulty of erecting a brick building, at least one that would be dry, in the limited time, as well as by the opposition raised to the erection of a permanent structure in one of the parks. The Committee we may infer, could not bring themselves to believe in the destruction of a building to be raised at enormous cost, recollecting also that large area, roofed over, for winter garden, exhibition, and many purposes of recreation and education, and of advancement of art and science, had long been one of the wants of London. That this view of the economic and educational points was justifiable, we believe was shown subsequently by the agitation for the retention of the building in the Park, by the eventual removal to Sydenham, or rather new building there, by the reasons adduced for the purchase of the South Kensington Estate, and by the design of the present Exhibition building, or main portion of it, as permanent. The building of 1851 met the difficulty of a peculiar combination of circumstances: its plan did not in the least respond to the publication of requirements as made to the architects: it allotted no particular location or amount of space to any group or class of articles; and merely essayed to roof over the entire area of ground, providing the best contrivance for lighting, but with some disadvantage as to keeping out the weather. The real planning commenced only with the arrangement of the articles in the building. The question then, placed before those who arranged the Exhibition of this year, and submitted by them to Captain Fowke, may thus be described to have been, and probably was, between a mere case, or shed, to inclose the largest area, and the planning which would immediately respond to the requirements of classification, and of the circulation of great multitudes. The result, instead of improvement upon the shed of 1851, has been seen in arrangements which, aggravated only by the crowding of "trophies" and general limitation of passage-room, have helped to harass and weary the bulk of inquiring visitors since June last, and produce a *bouleversement* of ideas in the strongest heads rather than enlightenment.

To make the Babel worse, every kind of melody and clang was set to work, to draw away or to distract the attention from what we must regard as objects more important than music played by little boys or girls; who surely were listened to, not from any love of *music*, or from the desire to test qualities of an instrument exhibited, but from that diseased taste which runs after *phenomena* and prodigies. Those who were the really able performers on the piano, have been heard to say that, on the shilling days, it was scarcely possible to play well. Why our contemporaries, who suggested the musical performances as features of "the Exhibition," should not have seen that any music, in a place where the main object to be regarded was study, would approach to being an annoyance and a source of injury, we cannot understand. We should as soon think of setting up an orchestra in one of the galleries of the British Museum, or in the reading-room itself of the library, or of expecting the sounds of an organ to assist the calculations of Mr. Babbage, as to look for good result from music in such a case as that of the late Exhibition. Whether the circumstance may have been due to one element of the confusion, or generally to the tumult and distraction that were intensified by the defects of building-plan, we do not say; but, it is the fact that in one week, an eminent London physician had three cases of persons attacked with apoplexy just after they had quitted the building, and attributed the attacks to the Exhibition. Such cases will be regarded as exceptional; but, really, they but represent extremes of the sensation produced in multitudes of people, who not having known where to go for what they might have been specially interested in, and being wearied with struggling through narrow passage-ways, realized fatigue of body and mind, so much as to prevent repetitions of their visits. The bulk of the visitors seem to have been strangers to London, who spent a week in town, and endeavoured in that time to get through all the regular sights, and shows and meetings which were got up in abundance. Generally what these visitors expressed themselves most pleased and impressed with, were not the building and contents of "the Exhibition," but the perspective of the interior, and the works of art, of the Crystal Palace. School-children, in the saddest of all processions, as an Andrew Combe would have said, were dragged through the building, and were not able to see over the heads of the crowd; and parties of holiday-makers spent much time in the refreshment-rooms and in looking for one another, and in searching for the cow-milking machine, the piping bullfinch, and other curiosities. We charge upon the management, such absence of profitable result, if only because of their omission to publish a sufficient plan, and to exhibit one on a large scale, and coloured, in the building. We do not say that a single visit to such a collection of objects as there were at South Kensington might not be valuable to a child, or a labouring man; and least of all do we think that an educated mechanic might not have found profit, even taking into account the loss to him of a day's wages, besides to some individuals a positive sum paid for a substitute in the duties of a place. It is the especially ignorant, of all ages and classes, who presume themselves the reverse; and there is no means of striking home to, and forcing the conviction in, people of this sort, that they are veritably ignorant, equal to the means contained in such a grand collection as that lately brought together. For this end, however, probably, there must be something more than a general impression of extent of an exhibition, and something retained beyond the sense of tumult and confusion. Any class of objects well studied, or any perception of what were the subjects designed to be illustrated by the Exhibition, and of the mere names and geography of the countries contributing to the illustration, would be something of result, positive. But, how small was the chance to any one who had not previously become acquainted with the scheme of the Exhibition, and with the intricate arrangement of the building, of getting even so far as the point alluded to! In what parts of the world are "Zollverein," Ecuador, Hayti, Dominica, and even Queensland; and why are Norway and Sweden, which are under the same king, kept separate? There are many clever people who would be puzzled by such questions. Or supposing we want to learn something about places of which we have read, as the Sandwich Islands, Liberia, Madagascar, and Siam, where are we to find the articles from those countries which we have heard are in the building?

Regarding the general plan of the building without now adverting to the external design, the arrangements for exhibition and the circulation of crowds, must be regarded as a lesson of what should be avoided in future. The indeterminate division between British and foreign exhibited articles; the reference in the catalogues, and published plans, to a "central transept" which was not sufficiently marked in the building; the staircases, difficult to be found, partly from the crowding of the nave; the disposition of the annexes, to enter which was sometimes impossible, by reason of the struggling crowds who were returning and entering by the same narrow ways; the steps up and steps down again, which many ladies audibly expressed wonder at, and could not to the last find reason for, unless it were to annoy them; and the darkness under galleries, and especially in galleries such as that of the Indian Court and Stationery Court, are some of the defects with which we hold the design of the building, even taking it as not seeking primarily to subserve classification of the articles, to have been distinctly chargeable. There was no entrance from the outside, to the Western Annex, for the general public; and there was similarly none to the Eastern Annex, for some time after the want of one had become apparent. The walk through rain and mud, from the omnibus stopping-place to the building; and then, still unsheltered, to either entrance, was itself an instance of bad management; and it was of a nature to affect the financial returns. As to the lighting, even the picture-galleries were from some cause, perhaps not of structure or plan, inferior to their original the Sheepshanks Gallery. The calico appeared much too thick; at least (we suppose, not having been made to draw), it was left, no matter how dark the day, to obstruct a large quantity of light; and towards the close of the Exhibition, when the material had become very dirty, the pictures were scarcely to be seen at all. The light was the best in the square rooms in the angle towers of the building, where the calico was suspended by one edge from the centre of the lantern. In these rooms, however, especially the western, the little space as allotted to foreign schools, led to the piling up small pictures to a height at which they could not be seen.

As to the external design enough has been said. We cannot however leave the question of it, without registering protest against the idea that what is big, and a great feat of engineering, is necessarily a beautiful thing, an idea which starting from the "great feature" which somebody thought would "look well" in the building for 1851, as it was first designed, has gone fructifying to the domes of the present building, and seems even in danger of affecting the French, judging from their work, shown in one of our recent numbers, which looks so well on paper. It is not the possession of the biggest dome, so to speak of it, that makes merit of a design, or goes to realize the effect of beauty, which was the object; size may be an element of grandeur; but mere dimensions are relative to others which can be contrasted with them. But, more, the effect of duplicating such domes as these of the Brompton building,—not secondary but principal domes,—is to reduce the grandeur of each one. One dome as a culminating "great feature," indeed may be a noble object; but for that, it must be seen clear of the roof of the building from most points of view, like the dome of St. Paul's. And, a more lame result than that produced by either of the Exhibition building domes externally, whether regarding the arrangement of the *tambour* or support, or the effect which results from the use of glass, was certainly never realized in attempted architecture. Again, the idea, so pertinaciously fostered by the press, and by some who are merely adulators of the Commissioners, that an original bad design may be made good, is fraught with error of a kind which, persisted in, would for ever retard improvement in our art.

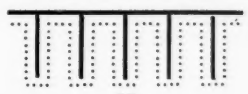
The difficulty of planning the building to subserve classification of exhibited articles, which arrangement it may be said could not be completed till the collection was ready for the opening, and this latter difficulty of the classification itself, however, form no justification of the crowding of the articles, and of the absence of sufficient indication, especially during the early period of the Exhibition, of the whereabouts of "classes." Even when the title, as "Civil Engineering," was lettered and hung up, the *number* of the "Class" was omitted. But, we are obliged to say that the classification as in the catalogue, is open to revision, and that the arrangement in the case of the objects in the building of 1862, has been radically wrong. For, a foreign country might have its raw materials, say, exhibited in one or more of half a dozen different places; so that it became a matter of insurmountable difficulty to know where to look for them. They might be in the nave, or in the "court" itself, of the main building, or in the gallery, and scattered and separated in several places; or they might be in the Western Annex like Krupp's iron; or they might even be in one of the courts of the Eastern Annex, British division of the building, like the minerals of Portugal, and certain specimens of the marbles of France and Russia. Impossible was it, without immense trouble, to know where you could find what you would be interested in; or whether you had not omitted something of essential importance to the subject you were inquiring into. The collection was like a vast library, without order on the shelves, and without a catalogue. The result of all the mistakes is a serious deduction from the usefulness of the "Exhibition" and from the sum of results; and, as we said in our former article we could not believe that the recent occasion would be the last of the kind, we propose to offer here certain suggestions for the avoidance of errors in future. Those who feel that such gatherings are useful every ten years or thereabouts, must set about preparations, or at least the consideration of means for avoiding mistakes, at once. It seems to us that the question of *plan* of a building, and that of site, require more attention than they have received. The shed form, which defers arrangement and planning till the articles are brought into the building, or which seems as much unfavourable to the arrangement and classification as the reverse, has we apprehend been now proved to be unequal to the demands. The question, moreover, should now be of a building which might be permanent,—whether "the Exhibi-

tion" should be permanent, or merely repeated at certain intervals. To pull down even such a building as that which exists, whilst covered space is wanted so much, is mere waste; and which permits expenses to weigh again heavily on an undertaking at a future time.

In a future case, the nave must be left still less encumbered with "trophies" and stalls, than it was even after the improvement in the arrangement made some time after the Exhibition was opened; a much larger proportion of area must be given to passage-ways everywhere; and the space for exhibited articles must be so great that objects may be never crowded together or overlapped, in a manner to interfere with study of them. The site, moreover, must be one to be reached with less difficulty than was the present building. It is worth considering, therefore, whether such a site must not be one to which there may be ample means of communication from most parts of the metropolis, by railway or by the river. We are supposing that the opposition to a permanent structure in Hyde Park would, of course, be again manifested. But the difficulty of obtaining sites more accessible than that at Brompton, would not be so great as might be supposed; though every year diminishes the field of selection. The construction of the embankment, both sides of the river, increased number of bridges, improved steam-boats, railways and tramways, all, together, and properly devised, would allow many sites to be available which are now not thought of. Several times, when treating the question of bridge-communications, we have noted the fact of much ground in the geographical centre of London, occupied by houses of a very inferior description; and now that the achievement of the embankment is likely to place more ground at disposal of the public, we think the question of one and many of the wants of London for which sites are required, might be revived. The French indeed, have not hesitated to appropriate ground not merely in a central site, but forming part of the chief "lung" of Paris, the Champs-Elysées, to a building, which, correcting the blunder of 1851, they erected as permanent. This building is in constantly recurring use for purposes analogous to those for which an ample area of covered space is so repeatedly wanted in London. An exhibition of designs for the Opera-House; the exhibition every two years of works of painting and sculpture by modern artists, pending consideration of the question of a special building; and the temporary housing and display of the products of the French colonies, and of the works of art of the Campana collection, are some of the purposes for which the Palais de l'Industrie has been found most convenient.

Viewing the objects to be served, and seeing that the operation of planning must not be cramped by boundaries of an irregular site, as came to pass in the case of the building and its annexes at South Kensington; and admitting difficulty, as well as the importance, of obtaining the site; we may do well to state what appear to us points to be attended to in the plan of a building for International Exhibitions, and in the arrangement and classification of the objects.

The freedom of circulation of crowds; symmetry and simplicity of *plan*, which may assist us in finding the way from one part of the building to another, and in finding classes, or articles exhibited; and grouping in the internal *effect* of the building, or the arrangement of primary, secondary, and subordinate or dividing features, which may catch the eye and help recollection of places,—the latter the opposite of the glass-and-iron shed system where the tendency is to have all parts alike, and to hide the actual building in the partitions and cases,—should be the first principles of such a design. There should be a central space or nave; but it should be regarded mainly as a passage, or hall of access to the "courts" in which would be the articles exhibited. These courts, opening out from the nave each side, should be so distinct from one another in appearance of the frontage, and in the boundaries, as to make it impossible to mistake and to wander from one to the other. In short, the principle aimed at in the arrangement of the principal foreign courts on the north side of the nave, but only loosely carried into effect, should be rigidly adhered to; and it would be better to leave or shut off some space unoccupied, than to allow the general plan to be confused. The aim should be to allot every class and court its frontage, not to leave courts hid away, like the Processes court, the Brazilian, the Greek, and many others which were at the back of the frontages in the present building. The articles belonging to each class should not invade the nave, except it were desired to place some prominent object opposite the entrance of each court. Thus, had the principle been adhered to this year, the Norwich gates, Messrs. Peters's coach, and the "food trophy" either would have been not where they were, or the classes to which they belonged would not have been away from them. The separation in like instances was only an inconvenience, and a source of confusion. The courts should be arranged so that the crowds should circulate out of and into the nave, as shown by the dotted line in this rough diagram, in which N shows the



nave from which the recesses formed by partitions would open out. Any gallery space appropriated to a foreign country should not be detached from ground-floor space of the same country, or accessible only through a walk to a distant staircase, other classes and objects of interest intervening. The non-separation would be most desirable, even should it be necessary to have a staircase for each country. But were the classification by countries abandoned in favour of an observance of other classification throughout the building, much difficulty could be overcome.

As to such arrangement, however, in the numbered classes, as in the catalogue, something must be attempted in the way of amendment or correction of it. Classes, 1, 10, and 31, in which with 30, 34, and 35, we may be considered most interested, were arranged by each country on different principles; and the English edition of the catalogue for Italy says:—

"If an opinion were asked respecting the classification of the International Exhibition, it could scarcely be given, unless accompanied by the observation that the articles comprised in Class X. properly belong to one or other of several classes. In fact, we run risk of being involved in confusion when we have to consider the origin of certain articles and the uses to which they are destined."

Although it is not shown in this, what should be substituted for the arrangement resulting in Class 10, we have great reason to speak of that of the materials and contrivances belonging to architecture, building, and furniture, as embarrassing and time-consuming. And the system through which a sideboard,—one in which there is a good subject painted by Mr. Hancock,—can be found not with "Furniture," but with the objects of the Eastern Annex, surely needs revision. There is certainly a distinction between bricks and tiles, and mechanical contrivances such as shutters and window-fastenings, or between any of those and filtering apparatus. Somehow, between the two different systems, one the classification by materials, and the other by manufactured articles, much of the instructiveness of such an arrangement as it has been possible to follow in the Kew Museum, where each vegetable substance is shown accompanied with the different forms and articles into which it is manufactured, was lost. Great part of the difficulty indeed results from the immensity of the whole undertaking; and much might be done now to correct the short-comings, by supplementary exhibitions, devoted to a single subject, and its illustration complete.

We hope that the Commissioners, or the Society of Arts, will not rest satisfied with any pecuniary result, or even with the publication of the reports, but will even now that the Exhibition is closed, make efforts to extend the value of it. As to records, Mr. Hunt's Handbook, which for the British Division justifies what we said in favour of it, will effect little for the Foreign Divisions: the author must have laboured hard to do what he has done, so well. Of the models and plans of French public works, owing to their inconsecutive and crowded arrangement chiefly, there will be no adequate record, we fear, for some time, even in our own pages, where considerable space has been given to several of them. The value and interest of them was great; but we are told that with the exception of members of the jury, not more than four architects or engineers gave any study to them. What is to be done with many of the articles which would be most valuable in a permanent museum? We would ask the question as to nearly all the specimens of materials, both those of the United Kingdom, and those of foreign countries, things which would be of the greatest interest kept together, and may hardly pay cost of carriage back again. The valuable Zollverein collection, we have only heard, was refused by those to whom it was offered, from want of space. The Canadian collection, we have learned in answer to inquiry, is going back, like coals to Newcastle. Surely Sir W. Logan must have extraordinary occasion for it; or he would hardly do otherwise than leave it where it might be so useful to both Great Britain and the colony. Why in this colonizing country, have we not a Colonial Museum, into which the bulk of the colonial products which are exhibited might find place, one as well looked after as the India Museum? We have referred to the fact that the French have such a collection for their colonies. It formed a most instructive, because thoroughly well-arranged part of the French Division of "the Exhibition;" and we doubt not, has paid over and over again the cost of its maintenance. Indeed those who have the superintendence of that Museum, looking forward to the results for Algeria, consider that the knowledge obtained of her products during the last few months, will be as a new stage in her life. What is to become of all the photographs of buildings in the colonies, which it was vain to try to see in the Exhibition? What will be done with the geological maps of portions of Australia, and with the plans of towns? The "Educational Works and Appliances" which were sent by all countries, in answer to a special request; are these not to be left, gathered together as the comprehensive collection which was the original intention? We are informed by persons belonging to the Austrian Commission, that the collection from Vienna, only a very small portion of which could be found room for, will be scattered, some of the articles going to the Home and Colonial School Society, and some to other places.

Every exertion should be made, late as it may be to commence, to collect and leave for use and reference in the next ten years, the legacy of records and results, which it was the intention of friends and promoters of "the Exhibition" should be left; and which, more than benefit to individual manufacturers, would justify the cost and trouble of the undertaking; and every point that those best acquainted with the arrangements during the last few months, may have noted as a defect, should be at once made to tend to the greatly improved plan of a building, and classification and arrangement of its contents, in the future.

THE GAGGING SYSTEM AT THE INSTITUTE OF ARCHITECTS.

SIR,—The provincial members of the Institute are especially aggrieved by the new regulations of the Council. In the *Builder* we found word of all that transpired at the meetings within a few days after it had taken place. We shall now be left in ignorance of every information till it is too far out of date to be of current value. Do reconsider our case, and oblige other country members besides your OLD SUBSCRIBER.

SIR,—The publication of papers in the *Builder* has long been felt and acknowledged to be a general convenience, and a public good: it is to be hoped that the Council will retrace their ill-advised steps, in an unwise attempt to narrow this question, and prevent that proper diffusion of information. It argues ill of that liberal feeling with which fine art and sanitary questions should be considered, and is an unwise, illiberal, and retrograde policy. The useless expense proposed to be incurred might be added to the salary of what we now more than ever want,—"An efficient well-paid secretary." F. I. B. A.

SIR,—I believe you to be entirely right and the Council entirely wrong. Though an old member of the I.B.A., I should never read the "Transactions" when they come months after date; but on Friday night I look regularly for my *Builder*, and spell every word that has been said and read in Conduit-street; and I must confess these reports have made me proud of being an architect, and proud that a large public at home and abroad can, through your pages, see what the architects, both as writers and speakers, are capable of. I feel assured that the reports in the *Builder* must have tended immensely to advance the profession in the eyes of the public. M.

SIR,—On reference to the charter of the Royal Institute of British Architects, it will be observed that the Institute was established "for the *general* advancement of civil architecture, and for *promoting and facilitating* the acquirement of the knowledge of the various arts and sciences connected therewith."

Some light may be cast on the question, how far the new resolution,—"It is not desirable that the papers should be published *in extenso* in the

public journals," is likely to promote the original object of the founders of the Institute, by their successors' conclusion, that such publicity "tends to depreciate the value of their copyright, and of their subsequent publication in the 'Transactions.'"

In plainer words, the present Council seek less the "*general* advancement" of architecture than that of the funds of the Institute. For, first, it is clear that the enforced restriction of valuable papers to private volumes of the "Transactions," not for sale, and thus of narrow circulation, and the exclusion of such papers from public journals of wide circulation among all classes—except in the form of "full abstracts," of limited utility, on payment, or short abstracts, practically useless—must retard rather than promote the "*general* advancement" of architecture.

Secondly, it is extremely unlikely that the copyright of the 300 or 400 impressions of "Transactions" will be so enhanced in value, and that the sale of the "abstracts" at one guinea for each paper will tend so greatly to augment the funds of the Institute, as to render it politic and desirable, on these grounds alone (for none other are stated), to exclude full reports from absolutely the only channels in which they can readily meet with wide circulation. That the object of the resolution is a covert one, to allure subscribers for the sake of the "Transactions," it is impossible to believe; since such a wail of distress would be too significant to avail aught in propping up a public and corporate body compelled to resort to virtually limiting information, hitherto open to all, as a means of support.

But it is questionable whether, according to the charter, the Council are free to enforce regulations with the sole object of increasing the value of their copyrights and swelling their funds, if such regulations shall appear framed more with regard to private profit than public utility, and to clash, in their narrow exclusiveness, with the broad and enlightened spirit of an institution for "promoting and facilitating" the "general" advancement of the art; for it is laid down that, "no resolution or by-law shall, *on any account or pretext whatever*, be made by the said body politic and corporate in opposition to the *general scope*, true intents, and meaning of this our charter, or the laws or statutes of our realm; and that if any such rule or by-law shall be made, the same shall be absolutely null and void to all intents, effects, constructions, and purposes whatsoever."

I know, sir, that I am but, in a measure, paraphrasing your own able and sensible leader; but the argument is grave, and admits of reiteration and amplification. E. L. TARBUCK.

I THINK the resolution of the Council most unwise and likely to be eminently injurious, both to the Institute as a body, and to architecture as an art. Three other past vice-presidents have signified to me their strong conviction that the arrangement is most injudicious. In fact, I can find no leading member of the Institute willing to take the responsibility of the change, and am told it has originated in such a mean motive that a precise statement would bring no honour to its authors. I hope revocation may save the necessity for further discussion.

A PAST VICE-PRESIDENT.

ANCIENT RINGS.

IN the last part of the valuable catalogue of works on loan at the South Kensington Museum, Mr. Edmund Waterton, F.S.A., gives the following introduction to the list of rings:—

This collection of rings has been formed for the purpose of illustrating the history of finger-rings from the earliest date. Consequently they have been arranged, as far as possible, in chronological order, and it is this peculiar feature which distinguishes the *Dactyliotheca* now exhibited from other existing ones, and constitutes its chief interest and value.

The series commences with those of Egypt. Signet rings were much worn by the ancient Egyptians. Their rings were made of gold, of silver, of iron, and of bronze, and were frequently set with revolving *scarabæi*. The lower classes wore rings of ivory and porcelain. Examples of these rings are exhibited, Nos. 3 and 7. The Greeks are supposed to have derived the use of the ring from Asia. As no mention is made in Homer of rings, Pliny concludes that in those days they were unknown. As with the Egyptians, the primitive use of the ring was to serve as a signet, hence, to prevent fraud, Solon enacted a law that no seal engraver was to keep by him the impression of a ring he had cut; whilst Pythagoras, out of reverence, forbade the images of gods to be worn in rings. In the earlier ages the rings were all of metal, then stones were set in them. The art of gem-engraving became in consequence much cultivated, and the Greek engravers arrived at a high degree of perfection in it. No gems certainly known to be of the Phidian period exist. It is believed that gems were not mounted in rings prior to the LXII. Olympiad. Alexander the Great appointed Pyrgoteles to be his "engraver in ordinary," and alone to execute his portrait in gems, just as Apelles and Lysippus in marble. Greek rings occur of gold, of silver, and of bronze; women wore them of ivory and amber. The Greeks wore their rings generally on the annular or fourth finger of the left hand. The Etruscans were marvellously cunning goldsmiths, in which art their skill has never been surpassed. They had a peculiar method of fusing and joining metals without the use of solder, and this is the secret how to detect Etruscan jewellery in its genuine state. Gem-engraving was practised with them at a very early period: it was rude at first, but subsequently of such a nature as to rival that of Greece. The Etruscans rarely worked in cameo; this collection, however, contains an example, but in a modern setting. Rings of extraordinary beauty are found in the tombs of Etruria; in fact they abound, yet seldom do two occur of the same design or pattern. Silver rings are rarer than those of gold; iron and bronze rings are for the most part gilt; specimens of all sorts are in the collection. The so-called Egypto-Phœnician rings come from the excavations in Sardinia.

There is no nation with whose individual and personal history the finger-ring is so closely connected as the Roman. At first the Romans wore rings of iron, the gold ring being given to those senators only who were sent abroad as ambassadors; then it was adopted by the senators. Under the Republic and the Empire its use was regulated by laws. The ring of gold was the sign of equestrian rank, and the *Jus annuli aurei* became the height of a Roman's ambition. Prætors and quæstors had the right of conferring the *jus annuli*. In later times the privilege was much abused; and in consequence the distinction became depreciated in public estimation. Then the use of rings became immoderate in number and inconvenient in size. People no longer contented themselves with one ring; they sometimes wore rings on every finger, and even on every joint. One Charinus, according to Martial, wore daily a little matter of some sixty rings; that is, six to every finger; and, what is more remarkable, he loved to sleep in them. They seem to have chosen at pleasure the devices or subjects for their rings; some wore the portraits of their ancestors, or the representation of some event connected with their personal history, or that of their family. Every man's signet was his ring; the impression of it was affixed to all official acts and deeds. Hence Cicero, writing to his brother Quintus, governor of Asia Minor, admonishes him to be careful in the use of his signet: "Sit annulus tuus non ut vas aliquod, sed tanquam tu ipse; non minister alienæ voluntatis, sed testis tuæ." The circumstance that not merely individuals but states had their seals, perhaps explains the great correspondence of many gems in rings with coin types. Roman rings occur of gold, of silver, of iron, of brass, of ivory, of lead, of amber, and of glass, and of one piece of stone; examples of all of which, with the exception of ivory, are represented in the Dactyliotheca.

The Roman rings are followed by those of the Early Christian period. Clement of Alexandria, reproving the heathen custom of wearing lascivious subjects cut on their rings, suggests to the Christians that they should have engraved devices of symbolic meaning, having reference to their holy faith; such as a dove, which symbolizes life eternal and the Holy Spirit; a palm-branch, peace; an anchor, hope; a ship in full sail, the church; a fish or ἰχθὺς, and the like.

Passing over the few Gnostic rings, and those of the lower empire, which need no comment, we come to the Byzantine ones. The nobles of Byzantium wore generally signet rings of metal; *i.e.*, unset with stones, having the letters of the cognomen arranged in the form of a cross: of this class of signets an example is given. There are also two other rings ornamented with niello; and a signet set with a bloodstone intaglio of St. Theodore.

The Merovingians were fond of employing precious stones for the ornamentation of their jewelry, and frequently in such a manner as to represent cloisonné enamel. Some examples are given, and also a remarkable specimen of filigree, or rather gold-work appliqué. The chief feature in Merovingian rings is that the bezels are for the most part circular, and project considerably.

The goldsmith's craft was much cultivated not only by the Anglo-Saxons, but by the whole of the Teutonic race.

In Beowulf we read:—

> "For one of wondrous gift
> a goldsmith's art
> is provided.
> Full oft he decorates
> and well adorns
> a powerful king's noble,
> and he to him gives
> broad land in recompense."

Owing to the ravages of the Danes, and the needy Norman adventurers under William the Conqueror, whose appreciation of the fine arts was overcome by their thirst of plunder, few examples of the skill of our Saxon forefathers in the precious metals have been spared to us. Amongst the examples of rings of this period may be enumerated the ring of Alhstan, Bishop of Sherburne, A.D. 823—867; a massive gold signet with the name ALFRET, or AVFRET; and a silver ring of North Saxon make: the bezel is ornamented with lacertine work, and which is, as far as can be ascertained, the only existing ring of the kind.

Having now arrived at the eleventh century, we must diverge for a while, and consider the rings which come next in order, viz., papal rings, and others.

The sovereign pontiff, on his promotion to the see of St. Peter, receives no ring, being already a bishop, and invested with the episcopal insignia. Neither does he receive a ring at his coronation. For some centuries the sovereign pontiffs have used a seal ring, styled the Ring of the Fisherman, so called because it represents St. Peter, the prince of the Apostles, seated in a boat, and drawing a net from the waters. It has been used for the sealing of those documents called briefs apostolic, from the fifteenth century; but prior to that time it was employed for the private letters of the popes. The earliest mention of it occurs in 1264. Writing to his nephew from Perugia, on the feast of Saints Perpetua and Felicitas, Clement IV. says: "Non scribimus tibi, neque familiaribus nostris sub bulla, sed sub *piscatoris sigillo*, quo Romani pontifices in suis secretis utuntur." On the death of every pope it is broken and a new one made. The Ring of the Fisherman is never worn by the pope. That used by the Sovereign Pontiff Pius IX. is of plain gold, rudely executed, and weighing one ounce and a half; it is always in the keeping of the Magister ab Admissionibus, or Lord Chamberlain; whilst a small stamping die is used in its stead by the Secretary of the Briefs. The use of the large brass rings with papal arms and emblems, of which several are in the collection, remains a mystery. The earliest one of which the writer knows, is that of Gregory XI. 1370—1378; the latest, that of Julius II. (1503—1513). Many exist with the names and arms of the same pope; thus, I know of eight of Pius II. (Piccolomini, 1458—1464.) Various conjectures have been made as to their use, that they were given by way of credentials; that they were given by the Holy See when erecting a fief; that they were used for the statue of St. Peter, in the Basilica of St. Peter's at Rome; but in the absence of more certain data, the writer's opinion is that they were used to contain filings of the chains of St. Peter, and sent as presents by the holy father. This practice of enclosing filings of St. Peter's chains in rings was in vogue as early as the eighth century.

Cardinals on being raised to their high estate are invested with a ring in the public consistory by the sovereign pontiff. It is unknown when the ring was first given to them, but in the twelfth century it is spoken of as being then an old custom: cardinals' rings are always set with a sapphire. The ring is one of the earliest of the episcopal insignia, and its primitive form and use was a signet. Until the introduction of large official seals, the ring of the bishop was his signet; and of this we have abundant proof in charters of the sixth, seventh, eighth, and ninth centuries, cited by Mabillon and others. The device engraved on the rings seems to have been selected at the pleasure of the wearer. St. Augustine had on his ring the head of a man in profile. Sometimes the ring of the bishop was called the "Annulus Ecclesiæ." Finally, in 1194, Innocent III. ordained that the bishop's ring should be henceforth of solid and pure gold, and set with a gem, on which nothing should be engraved. If bishops were deposed their rings were taken from them. Abbots who have received from the holy see the

privilege of using the episcopal insignia, wear also the ring.

Amongst the varieties of the fourteenth and fifteenth centuries, one very pleasing class is formed by the "Iconographic rings;" that is, of rings which have, either on the bezels or on the shoulders, the figures of our Blessed Lady and Child, or of saints. They are nearly all of the same style of workmanship, and those of silver are always of much ruder make than those of gold. Their date may be assigned from 1390 to 1520 at the latest, and they are peculiar to England and Scotland. These are followed by devotional rings with sacred monograms, and others with inscriptions, some with the holy names, such as IESVS, MARIA; others with the names of the three kings, spelt in all manner of ways; others with the title upon our Lord's cross, IESVS . NAZARENVS . REX . IVDAEORVM. Many of these were worn against the cramp. Then, again, we have charact rings of superstitious use, which were charms in the forms of inscriptions, such as ANANIZAPTA; and strange barbaric words and combinations, such ✠ ES. ✠ EBER ✠ DIABIR ✠ SABAVS. One ring in particular has a most curious legend on the hoop: IESVS . AVTEM . TRANSIENS . PER . MEDIV . ILLOR., which words were held to render the wearer invisible. Many other rings of this class have cabalistic names and words utterly unintelligible.

The class of signet rings contains many interesting varieties. The earliest of the Mediæval ones (including in that term the period from the sixth to the sixteenth centuries) are those with *siglæ* or monograms; these were much used from the fourth to the tenth centuries. These *siglæ* very probably led, at a later period, to the adoption of certain arbitrary signs, called merchants' marks. Merchants and others not entitled to armorial bearings used to have engraved on their rings these devices. They were much used in England and on the Continent. Pyers Plowman speaks of "merchantes merkes ymedeled in glasse." Another class of signets are those set with antique gems. During the eleventh, twelfth, thirteenth, and fourteenth centuries the art of gem-engraving had nearly died out; and hence we often meet with Roman intaglia set in rings, and a legend engraved on the metal setting. Then, again, there are rings with punning devices called a "rebus." Amongst those with heraldic emblems, and shields of armorial bearings, there are some which are set either with crystals or white sapphires, and which have the tinctures represented underneath, in enamels, thus blazoning the arms. The earliest known example of this work is the ring of Jean Sans-Peur, Duke of Burgundy, who was assassinated in 1419. Another interesting example of this class is the signet ring of Mary, Queen of Scots, now in the British Museum.

We now come to the different varieties of wedding-rings. The fyancel or wedding-ring is doubtless of Roman origin, and was usually given at the betrothal as a pledge of the engagement. Its primitive form was a signet or seal ring. Amongst the wedding-rings there are three Roman ones; one of gold, with the *fede,* or two hands joined, which Baronius calls the "hieroglyphicum concordiæ et amoris;" another of silver, set with an intaglio of the same device: and a third, all of silver, with the *fede,* and inscription NIKAS. Then there are the "posy" rings, with inscriptions; formerly called "chançons," then "resons," or "reasons;" and finally posies or poesies (from ποίησις). Another variety of the wedding-ring is the "gimmel" ring, or double ring, which opens and shuts together again; but this term is only applicable to rings which divide, and, when divided, play into each other. Many of these gimmel rings have the *fede,* and the hands open and clasp each other. There is also another variety, which consists of rings with three hoops, opening on a pivot, and disclosing under the bands two hearts. Strange as it may seem, the Jews did not adopt the wedding-ring until after they saw it in general use with other nations. Several of the Jewish wedding-rings are in the collection. Some are curiously ornamented with filigree and enamel; and they all have the inscription, in Hebrew, MAZUL TOUB, "God be with you." These rings are made for the use of the synagogue, where they serve in the celebration of the marriage ceremony, being placed on the finger of the couple at a certain part of the rite.

During the Middle Ages many stones were worn in rings, and highly esteemed for the talismanic and medicinal properties and virtues which they were held to possess. The ruby, the emerald, the heliotrope, and others were much esteemed. The turquoise was likewise valued, and it will be remembered that Shylock prized his "turkoyse" beyond a "wilderness of monkeys." The toadstone or crapaudine, which is in reality a fossil, but which, for many ages, was believed to be engendered in the head of a toad—and hence its name—was much worn. Rings set with crapaudines constantly occur in old inventories. A ring made of the hoof of an ass was held to be good against epilepsy.

Resuming again the chronological order of the rings from the thirteenth century, there appear some rude bronze rings set with glass, found in a stone coffin in the neighbourhood of Oxford, and some very beautiful examples of the fourteenth century. These are followed by some silver rings with nielloed portraits, which are of rare occurrence; and a series of rings of the Renaissance. It is somewhat difficult to meet with rings of this period, with the original stones in them. The settings are exceedingly elegant, and frequently display a graceful combination and adaptation of classical figures for the shoulders of the hoop. Several marvellous rings of the Renaissance, the work of Benvenuto Cellini, are, or were, at least in 1858, preserved in the Gabinetto delle Gemme, in the Uffizij at Florence.

Amongst the miscellaneous rings of this date may be enumerated a leaden ring, with the heads of the Emperor Charles V. and his empress, which is made to serve as a whistle; and also a curious copper ring, with the head of Medusa, which can be used as a squirt. Then there come some momento or mourning rings, with death's heads, such as were often bequeathed by will in the sixteenth and seventeenth centuries.

Finally, there are two shelves of miscellaneous rings, consisting of Indian, and Caffre, and others, which require no observations.

In preparing this brief sketch, the remarks have been arranged as much as possible to suit the order in which the rings are placed in the case.

Several of the rings show the early use of niello; one of Late Roman work is ornamented with it, as also two of Byzantine make. Then there is the Anglo-Saxon ring of Alhstan; and the fourteenth and fifteenth centuries present numerous other examples.

SHEFFIELD.

Sanitary State of the Town.—A report by Ald. G. L. Saunders to the Health Committee of the Town Council, dated Nov., 1862, says:—"By resolutions of the council passed the 12th of February, 1862, an elaborate statement of the health of the borough for the year 1861 has been obtained from the registrars. From the varied statistics contained in their returns, it is evident that the health of the inhabitants has greatly improved, and that Sheffield is now far below, as respects its death rate, any other town of similar character and size. (?) That much has yet to be done, both with respect to drainage and proper ventilation and improvement of the dwellings of the poor, is but too certain. The want of the means for securing cleanliness amongst a large portion of the humbler classes, together with overcrowding and poverty, are doubtless great causes of disease and death. Could anything be done to remedy or modify these evils the death-rate would assuredly present a different aspect, since it is evident by the returns of the Registrar-General that much of the existing unhealthiness of all large towns arises from the dirty habits of the poor, combined with want of proper food and clothing. The diseases that chiefly arise from bad sanitary arrangements are reported to have materially diminished. Of sixty-three grinders whose deaths are recorded during the year, forty-eight died from consumption or grinders' disease, and fifteen from other complaints; showing how necessary are increased precautionary measures to protect those engaged in this branch of the Sheffield trade; although much blame, we hear, is attributable to a sort of defiant and stupid recklessness on the part of the men themselves, who will use no precaution. Of cutlers sixty-three died, twelve from old age, and fifty-one from various complaints; a large proportion from consumption. Of file-cutters forty-one died, nineteen from consumption, and twenty-three from other causes. The loss of infant life is as usual sadly great, 2,365 deaths, or about 50 per cent., from birth to five years old; those deaths in a large proportion occurring amongst the poorer classes; who lack the means, too often, of properly taking care of their offspring.

The School of Art.—The annual meeting of the local School of Art has been held in the board-room, under the presidency of Mr. Stirling Howard. The following is an extract from the report of the council, which was read by Mr. Young Mitchell:—"The council have much pleasure in being able to announce to the members that the school continues to maintain its high reputation, as exemplified by the success of its pupils at the recent International Exhibition. Early in the year the Department of Science and Art, wishing to obtain a good illustration of the education afforded by schools of art, issued a circular inviting all the schools of art to compete for the following money prizes:—For the best design for execution in wrought or cast iron, such as park-gates—1st prize, 15*l.*; 2nd ditto, 5*l.* For the best design to be executed in gold or silver, such as centrepieces for table, epergnes, candelabra, &c.—1st prize, 15*l.*; 2nd ditto, 5*l.* Works in competition were sent in from eighteen schools; and of the five prizes awarded, three were gained by pupils of this school; the first prize of 15*l.* for ironwork being gained by Hugh Stannus, for a design of park-gates and railing. The present number of pupils is 216, a good average as compared with former years, but less than should be found, in a town like Sheffield, to avail themselves of the advantages of such an institution. The treasurer's account showed that the building fund has now been closed, leaving the school under a debt of 1,560*l.* There is no other new feature in the accounts for the current year. The report and statement of accounts were adopted; and it was resolved—"That this meeting has great pleasure in acknowledging the very efficient manner in which the instruction has been conducted by Mr. Young Mitchell, the head-master, and Mr. Lionel Legge and Mr. H. D. Lomas, the assistant-masters."

The Free Public Library.—In the sixth annual report of the committee of this library, they state that during the last twelve months there has been a considerable increase, both in the aggregate and daily issues of books from the library. From September 1, 1861, to August 31, 1862, the issues have been:—

From the reference department....	13,065 volumes.
From the lending department.....	141,456 volumes.
Or a total of	154,521

From October 1, 1860, to September 30, 1861, the issues were:—

From the reference department....	11,187 volumes.
From the lending department.....	114,859 volumes.
Or a total of	126,046

COMPETITIONS.

City Prison, Exeter.—At a recent meeting, the town clerk read the following report:—"The Special Gaol Committee, to whom the plans for the alteration of the city gaol were referred, beg to report that the plans and accompanying papers sent in for competition are as follow:—No. 1. Five plans from Messrs. Kennedy & Rogers; No. 2. Six plans from Messrs. Hickes & Isaacs, Bath; No. 3. Three plans for alterations, and four for a new prison, with two reports, from Mr. G. R. Crickeney; No. 4. Two plans and a report from Mr. Aaron Walters, Paddington; No. 5. Four plans and report from Mr. G. H. Julian; No. 6. Five plans and report from Mr. Henry Lloyd. No. 7. Five plans and report from Mr. H. Prosser, 24, Melton-street, Euston-square; No. 8. Four plans and report from Mr. A. S. C. Baker, 52, Lower Belgrave-place, Pimlico; No. 9. Eight plans and report from Mr. Joseph Neale, St. Leonard's Chambers, Bristol; No. 10. Four plans and report from Mr. W. Cross, Queen-street, Exeter. They further beg to report their opinion that the premium for the best plan should be awarded to Mr. W. Cross—No. 10; and that the premium for the second best plan should be awarded to Mr. H. Lloyd—No. 6; and they recommend the council to award the said premiums accordingly." The report was adopted.

New United Presbyterian Church in Glasgow. We learn that the United Presbyterian congregation of East Campbell-street, under the pastorate of the Rev. Alexander Wallace, having some months ago resolved to take down their present church and erect another on its site, solicited designs for the new building from several architects in Glasgow. The building committee and congregation have of late held several meetings to inspect the several designs submitted to them; and after deliberation they chosethat of Messrs. Haig & Low, architects, West George-street. The front will be of a plain and simple character. The interior will afford accommodation to not less than 1,400 persons. The cost will amount to about 4,500*l.*

New Cemetery at Pewsey.—The Burial Board of Pewsey have, from a number of designs submitted by various architects for the mortuary chapel, &c., in answer to their advertisement, unanimously

selected those sent in by Mr. C. J. Phipps, of London and Bath; and we understand the work will commence immediately.

FALL OF ARCHES ON THE HAMMERSMITH AND CITY EXTENSION RAILWAY.

THE daily papers have already made known that on the evening of Thursday, the 6th, a fall of brick arches, and the consequent death of six men, took place on the Hammersmith and City Viaduct Railway, a line of about three miles in length, joining the Great Western at a point a short distance from Paddington, and running thence to Hammersmith, with a branch to Shepherd's Bush. By means of the Metropolitan Railway it will be brought into connexion with the City. To the north of Notting-hill it is carried through fields at a considerable height over the level of the locality. As it approaches Walmer-road, which leads from Notting-hill to Wormwood Scrubs, the permanent way is laid upon a series of brick arches. Nineteen of them had been completed to the east of Walmer-road, and of these fourteen came down.

Of course it is stated that the accident was beyond the power of human control. Mr. Fowler, who is the engineer, and Mr. Rummens, the contractor, conclude, according to report, that the accident arose from the subsidence of one of the nineteen piers between two bridges, which subsidence they supposed to be due to the existence of an old sewer that had been in disuse for fifty or sixty years. It is stated that the first symptom of subsidence manifested itself on Thursday morning, and it was not until ten hours before the accident happened that any outward indications of danger appeared. The piers had been built for some months.

CERTIFICATE OF THE "OPERATIVE BRICKLAYERS' SOCIETY."

WE have received from Mr. Coulson, the secretary, a copy of the engraved certificate of membership of the "Operative Bricklayers' Society," to which we referred, if we remember rightly, at the time the design was made by Mr. A. J. Waudby. It has been well engraved by Mr. J. H. Le Keux, the figures by Mr. C. H. Jeens, and is very superior to such certificates in general. The structure, which is made to show, in its openings, London, Rome, and various incidents in connexion with bricklaying, has Science and Art for foundation, Truth and Prudence for supporters, and Justice presiding at the summit. We receive it with the more gratification, because the Society say, "We beg you will accept it as a memento of our respect in remembrance of the dignified course that you pursued in matters that affected the interest of our class."

Caring no less for one class than another, avoiding partizanship, and seeking earnestly in class disputes to do what seems right, we have run the ordinary risk, in such a course, of pleasing none. To find our motives understood and appreciated when the heat of a fight is over, and men reason calmly on what has passed, is a reward for which we are grateful. Let masters and men, alike, be guided by the principles set forth on the Operative Bricklayers' certificate, and we shall have no more ruinous strikes, with their demoralizing and destructive accompaniments.

THAMES EMBANKMENT (SOUTH SIDE): AND MAIN DRAINAGE.

METROPOLITAN BOARD OF WORKS.

AT the meeting of the Board, held on the 7th inst., the following report was read from Mr. Bazalgette:—

"THAMES EMBANKMENT (SOUTH SIDE), FROM LONDON BRIDGE TO NEAR VAUXHALL-BRIDGE.

Engineer's Department, Spring Gardens, November 6, 1862.

Gentlemen,—In my preliminary report upon the Thames Embankment of the 15th ult., I suggested for your consideration the principle upon which an embankment might be advantageously constructed on the south side of the river between London and Westminster Bridges, and the outlay thereof defrayed at a moderate cost to the public. I now submit, pursuant to your instructions, a plan showing the line of such embankment as I recommend. It would form a continuation of the line of the new embankment in front of Mr. Alderman Humphery's wharf, at London Bridge, commencing on the west side of St. Mary Overy's Dock, and continued in a curved line to the south abutment of Southwark Bridge, and thence to the south abutment of Blackfriars Bridge. Up to this point the embankment would not encroach upon the river further than is required to convert the present irregular line of frontage into a regular line, and to reface the present wharfs.

It is moreover proposed to cut off a small portion of the wharf wall which now projects into the river beyond the abutment of Southwark Bridge, and therefore the narrowest gorge of the stream, and so far to widen the river at this pinching point. From Blackfriars Bridge the line of the proposed embankment gradually extends into the river as the river widens, until it reaches the first pier of Waterloo Bridge, and the new Charing-cross Railway bridge, from whence it passes, in a line nearly parallel with the present foreshore of the river, to the south embankment of Westminster Bridge.

The present docks would all be thus maintained and lengthened, and about 13 acres of land would be added to the wharfs. The river is at the same time so wide opposite the localities where the embankment extends into it that there is, if desirable, abundance of room for the storage of timber upon the foreshore, as at present, and the value of the land reclaimed ought to refund a considerable portion of the cost of reclaiming it. In my preliminary report I estimated the cost of this work at 250,000*l.*; but as it will be prudent to provide for deeper foundations than I at that time anticipated, and allowing for contingencies, I now estimate it at 350,000*l.*

The embankment recommended by the Royal Commissioners between Westminster and Chelsea bridges is estimated to cost 1,100,000*l.*, inclusive of compensations. Probably the most useful part of this scheme consists in the formation of a roadway from Westminster Bridge and the Palace New-road to a point near Vauxhall Station, whence six or seven important lines of thoroughfare diverge in different directions.

To accomplish this object, I propose to construct a roadway similar to that recommended by the Royal Commissioners up to Lambeth Bridge, but not extending quite so far into the river, and to form a junction with that bridge at its southern abutment. This line would form a better approach to the bridge, and would not interfere with its construction, as the line recommended by the Royal Commissioners must necessarily do. I propose to terminate the embankment a little above the bridge, and to cut off the projecting point of land, and thus widen the river at its narrowest gorge, opposite Millbank Penitentiary. Thence, I propose to continue the roadway in nearly a straight line to the point near to Vauxhall Station, at which the roads above referred to converge. The embankment and roadway above this point are of less importance, and might for the present, with less public inconvenience, be postponed. Those premises above Vauxhall Bridge which are now subjected to flooding at high tides can be secured against this by raising their wharf walls 3 or 4 feet higher, at a very small cost to the owners thereof. The estimated cost of the works above Westminster Bridge herein recommended is 250,000*l.*, which, added to the cost of the embankment from London Bridge to Westminster Bridge (viz., 350,000*l.*), makes a total of 600,000*l.* for works, and leaves a margin of 500,000*l.* upon the estimate of the Royal Commissioners (viz., 1,100,000*l.*) to cover compensations,—an amount which, without having gone into the matter in detail, I believe will be found to be ample for the purpose.

I have appended to this report a table showing what the width of the river will be at various points between London and Vauxhall bridges after the embankments have been completed."

It was ordered that this report should be printed; and the engineer was directed to prepare plans showing the present state of the banks of the river, and what they would be if his plan were carried out.

The Board then proceeded to consider the question of applying to Parliament for powers to make a new street from Blackfriars Bridge to the Mansion House; and, after some discussion, the following resolution was adopted, on the motion of Mr. Deputy Harrison:—

"That the solicitor be directed to serve the necessary notices for a Bill empowering the Board to make a new street from Blackfriars Bridge to the Mansion House, and also for continuing the embankment of the Thames from Blackfriars Bridge to Southwark Bridge, and for the formation of a street from that point to the Mansion House."

The Main Drainage.

The following report of the engineer on the progress of the main drainage works was read and ordered to be printed:—

"The progress of the main drainage during the past month has been satisfactory. Messrs. Brassey & Co. have now completed in connexion with the middle-level sewer about 7 miles 1,072 feet of sewers, varying in size from 4 feet 6 inches by 3 feet to 12 feet by 9 feet 6 inches, at an estimated cost of 180,000*l.*, 15,000*l.* of which was done in the last month. Under Mr. Furness's contract for the northern outfall sewer, the ironwork over the Tilbury and North Woolwich railways, and the waterworks river, has been completed, and the other bridges are in rapid course of construction. The brickwork of the sewers on the embankment and substructure is being pushed forward; about 8,000 feet having been constructed during the past month; and the earth embankment over the same is being made up. The formation of the new line of the Stratford road is approaching completion. The special work of construction into the river Thames is fast progressing; about 11,000 cubic yards of excavation having been got out; and a cofferdam is being constructed along the foreshore of the river. The total value of the work done under the contract is about 445,000*l.*, being about 27,000*l.* more than at the date of my last report. At the southern outfall works, Crossmess, Mr. Webster is proceeding rapidly with the excavations and concrete foundations. His pumping-engines are fixed and other preliminary works are executed. The total value of work done under the contract up to the present time is about 23,000*l.* Messrs. Aird & Son, under their contract for the Deptford pumping station, have now completed the river wall and barge bed, and have executed various other works of detail, at a total cost of about 94,000*l.*, of which 1,000*l.* is due to the past month. Messrs. Slaughter & Co. are getting in the sewage pumps and other works. On the southern high-level sewer Messrs. Lee & Bowles have executed during the past month works to the value of about 4,000*l.* The total length of sewers constructed under the contract is about 9½ miles, and the estimated cost is 188,000*l.* About 700 feet of sewer still remain to be executed to complete the contract. Mr. Pearson has completed 1¾ mile of the southern high-level extension sewer, at a cost of about 9,900*l.*, of which 1,400*l.* was done in the last month. In connexion with the Effra sewer works at Brixton, Mr. Webster has completed about 3,370 feet of 6-feet barrel sewer, at a cost of about 5,850*l.* Messrs. Aird & Son have made a commencement with the Bermondsey branch sewer at Jamaica level, and they have completed their preliminary preparations for carrying on the works at China-hall-gate and Griffin-street, Deptford. The Southwark-street subway and sewer are nearly completed between High-street and Great Guildford-street, being a length of about 1,500 feet. The cost up to the present time is about 22,500*l.*"

GUILDHALL ON LORD MAYOR'S DAY.

MR. BUNNING, the City architect, was more than usually successful in his decoration of the hall and adjacent apartments on the last occasion, and the result was particularly effective. The coming of age of the Prince of Wales gave the leading idea. The lobby entrance was decorated with a fine statue of Europe, by Durham, which in bronze will form part of the 1851 memorial. The decorations of the great hall were exceedingly appropriate to the occasion. In the centre of the eastern window, at the back of the upper table, was the fine statue of her Majesty, also by Durham, which was intended to have been placed on the summit of the memorial of 1851, in the Horticultural Gardens at Kensington, but for which, at the request of the Prince of Wales, a statue of the Prince Consort has since been substituted. Above this statue there was a plume of the Prince of Wales's feathers, formed of spun glass. On the right of the statue of her Majesty was a full-length portrait of the Prince of Wales, and on the left an equestrian portrait of his affianced bride, the princess Alexandra of Denmark. Over the screen which lines the lower portions of the sides of the hall, each compartment into which the walls are divided contained in the centre an allegorical figure of the principality of Wales, holding a Welsh harp, and on each side of the figure is a portrait of a former Prince of Wales, the series commencing with Edward, the first prince, and ending with George, eldest son of King George III. In the western window was placed a large painting, representing the presentation of the first Prince of Wales by King Edward I. to his Welsh subjects at Caernarvon; painted by Mr. Fenton, and deserving of praise. The hall was lighted in the usual manner by innumerable gas jets, arranged in conformity with the architectural outlines of the building, and two large transparent gaseliers suspended from the ceiling.

In the other apartments the "Reading Girl," the "Dancing Girl Reposing" (belonging to the Art-Union of London), and some clever scenic representations by Fenton, were the great features.

At the dinner Lord Palmerston was probably the only speaker who made himself heard over the whole hall; and Lord Brougham was the only person who had really something to say, and to which it is to be hoped the new world will listen.

LIFE, GROWTH, AND DEVELOPMENT IN ARCHITECTURE.

THE partisans of the imitative school seem to lose sight of the absolute necessity which exists for the introduction of some life-giving element into architectural design: without life there cannot be either growth or development; and to say that a new style must result from spontaneous development, is to imply a principle of action in architecture itself. It is strange how little power over the form art takes is by such writers conceded to the individual; and how apt people are to take refuge in the belief that the beautiful cannot be created, moulded, developed, and guided at will; but must needs follow its own course unknowingly and without aim. To argue that art, as applied to building, must always repeat itself in the selfsame circle, is to hold an opinion at variance with established facts. We know very well that the progress of architecture in Greece was marked by the *invention* of distinct *orders;* so that by applying such reasoning, we arrive at the conclusion that the development of Gothic art should have gone through the same process. On the contrary, we see that such was not the case; that there is nothing at all answering to the five orders contained in Gothic architecture. After the introduction of the pointed arch, several distinct varieties were developed, and Gothic rapidly passed through many phases. Again, in no other architecture can we discover the same distinctive or strongly-marked divisions into periods,—not even in Saracenic or Byzantine,—and certainly not in the architecture of the ancient world? May we not assume, then, that our future style is to come in a different form, and pass through phases differing from any preceding style? We may justly say that architecture should adapt itself to modern wants, and not be forced into them. It should also take its form in a measure from the materials employed, the system of construction adopted, and the sentiments and fancy of the individual and age. To force architecture by the combination of indiscriminate fragments of old styles, is what no man in his senses could possibly uphold, though in certain quarters the aims of myself and others are deliberately represented to tend in that direction. How such an idea could have gained ground, it is difficult to discover; for were this my object, could I ground the claim I make for a radical change in our architectural practice on the alteration which has taken place in our habits, feelings, and requirements? It is to meet these that all sensible men wish for an intelligible art in place of dead conventionalities or unmeaning contortions. The foundations of a modern style must be laid on a groundwork of common sense, and an attention to the legitimate demands of modern society. Modern requirements are forced into a casework of Classic or Gothic, to which they are compelled to fit like feet in a pair of tight boots. Architecture should be designed upon the *plan*, and while planning and holding the requirements in view, the external composition should never be lost sight of; neither should one unduly yield to the other; for the greater beauty of a design lies in the harmony existing between the plan and the external composition. This is one of the first principles that claim the attention of all practised in design, and should never be departed from. I could point to a dozen examples of first-class works where these principles have been overlooked; and how, in fact, can it be otherwise? If the architecture will not bend to the requirements, the requirements must bend to the architecture! St. George's Hall is a notable instance of this; for, with all the grandeur of the work and the consummate ability of the architect, it is still a building designed to fit a classical case, and the ingenuity displayed in adapting it must have been a painful task. Again, the Houses of Parliament, though also undoubtedly a great work, is a building designed to fit a Gothic case. In neither does the style flow naturally from the exigencies of construction or utility; and both buildings are, consequently, enormously costly. When shall we leave off this dressing up of dolls—this arraying our work in borrowed plumes,—and strive to inaugurate a more natural and graceful method? It is this impracticability, distinguishing all our art, which brings so much discredit on architects and architecture; and, what is more, so vastly increases the cost without any adequate result. This is my aim and object; and to effect it something more than *gradual growth* will be required; nay, it would seem to demand little short of a convulsion of nature before the deeply-seated and narrow-minded prejudices in which we have been nurtured can be uprooted.

The arguments which have been brought forward in favour of a system of combination as contrasted with adherence to ancient types have not yet been met, much less refuted; but the adoption of such a system, which would quickly revolutionize our practice and ideas of art, is advocated in a more or less mild form by several contemporary writers. It is strange and curious how, starting with the avowed intention of correcting prevalent fallacies in the rising school of architects, who have set themselves against the omnipotence of precedent, they adopt ideas first promulgated by those they wish to refute, and parade them under a slightly changed name or aspect; leaving the reader to infer that they are the result of their own investigation. Though the leading axiom that the principal styles have resulted from the combination or blending of the features of opposite styles individualised by after development has been conceded by contemporary writers; yet, fearing, I suppose, to travel too far at one stage, they urge that the combination is always effected by gradual growth. Let us but for a moment investigate this point, and see how the argument tumbles to pieces at the first reference to facts; but by all means let us avoid dealing in those high-sounding philosophical generalities under cover of which the art critic, after discharging his piece, retires for shelter. To speak of styles being the result of indigenous spontaneous development out of preceding styles is to deal with words without corresponding ideas; nor is it necessary to study nationalities or habits in order to elaborate a new style; but such phrases sound learned, and go down with the multitude. Mysticism seems to be the order of the day; and it betrays a lamentable absence of clear ideas to attempt to impart knowledge otherwise than by the simplest and clearest language at command.

If we take a retrospective glance at the rise of several styles, we shall find that so far from being gradual, the first change has usually been rapid, if not violent. To go no further back than the Pointed style, the introduction of the arch which has given it its name very soon revolutionized the architecture of the day; and though much the same *feeling* swayed the artists from the commencement of the Norman to the close of the Early English, the styles are distinctly individualised. The after varieties of the Gothic styles resulted from more than mere elaboration—from the efforts of creative fancy; now the peculiarity of modern architecture is, that none is *systematically* displayed in it. Here and there we see, perhaps, striking and creditable instances to the contrary; but generally, modern work is lamentably deficient in fancy, or simply vicious in principle. In most of the styles adopted, unless some radical change be first made, we cannot even elaborate; for they have received their utmost elaboration already; and the employment of antique styles may be fitly characterised as the wearing of dead men's clothes.

In the Byzantine style, again, the infusion of Oriental ideas brought on a rapid change. Indeed, it cannot reasonably be otherwise, for great changes always are rapid; though, no doubt, circumstances are prepared beforehand for the reception of a different class of ideas. There are several transition styles, and more especially the Gothic of Italy, that, not having been fully developed, possess innate resources sufficient, I believe, for the foundation of a new, though hardly modern, style. Art is many-hued, and its varied forms cannot be bound by conventional fetters, forged even by the greatest of masters. The learned student (and students we should wish to be as long as we live), if animated with a proper spirit, will find that the forms of art, so far from being immobile, possess wonderful plasticity and power. If our minds had not been cramped by dwelling too closely on examples, such would never have been doubted, nor should we have arrived at our present imbecility of thought.

Macaulay, in his "History of England," mentions, during the reign of James II., a divine who, by the vast amount of learning he had crammed into his brain, had smothered the small mental spark which originally illuminated his judgment. That has been our position with respect to architecture: too much knowledge has extinguished original invention.

The description given in the *Builder* of the sultan's palace on the Bosphorus proves more clearly than any other modern example I know of that original treatment results not from the analytical study of styles, but from the working of a mind untrammelled by useless rules, seizing hold of the salient points of two or more styles, and adapting or combining them. Analysis is not what is wanted, but creative imagination; an exactly opposite operation of the mind. Our invention is weakened by the very means recommended for its improvement and guidance; and we resemble the man who, wishing to write a book upon a certain topic, revolved in his mind the matters to be treated upon so often, and took so many views of the subject, that when he sat down to write he found that he actually had no ideas to put upon the paper. Let us, at all events, make a start; and even if the first attempt should prove not so favourable as was anticipated, we shall have the satisfaction of knowing that we are cultivating the qualities of mind which will lead us to the desired goal.

Having shown that the first commencement of a style requires a complete revolution in the combinations of form, it is equally to be observed that this must be followed up by development; the work of not one but many minds; but unless the art possess the germs of life, it is impossible it should grow, however great the ability displayed in it. Gradual growth is *one* element in the formation of a perfect style, and I am combating for the adoption of a style which will admit of it. No sane man would propose the introduction of a perfected style, even if it were possible; for then we should be relatively in the same position we are in now with the dozen styles in use; all of which may be said to have arrived at their culminating development. When a style has reached this stage it is time to look for the introduction of some new element which will change its character and give it fresh vitality. The human mind must move: if not upwards it will certainly move downwards. If I may be allowed the illustration, it may be compared to a man or horse in training; for when either has arrived at its greatest physical health, trainers well know that the condition cannot be kept up beyond a few days. A style being the result of a certain arrangement of lines and forms, whereby distinctive effects are brought prominently forward, individualizing it as in the case of the general characteristic features of several races of men, it stands to reason that once having obtained a set expression, every effort further tends to exhaust the possible combinations of form which can be made, without destroying its individuality. Now I am of opinion that a style is possible that shall possess much greater versatility than any yet formed. This is what we require, that all may have scope for invention; for though there is no necessity for the lineaments to correspond in each man's work, it is evident that a certain homogeneity should characterize all, that they may be entitled to rank in the same style. If the leading principles are the same in all, the feeling displayed in various designs will not clash when the buildings are placed in juxtaposition. In the present chaotic state, it is difficult to discover whether we are Goths or Greeks, Romans or Saracens, Chinese or Hindus; whether we live in the year 600 B.C., or the twelfth, thirteenth, fourteenth, or fifteenth century: each is equally "another of those things that no fella can understand."

To say that a style must be the result of centuries of labour, is simply to prohibit invention; and it is no less humiliating than distressing to think that we are all contributing towards some result in the far-off future, which no one can understand or interpret, but which only future generations are to enjoy. Such labour would prove more unsatisfactory than that of Sisyphus; for we should roll up our rock for the sole pleasure of future generations seeing it roll down again. What interest can any human being feel in his work, unless directed by a definite aim, and he sees some prospect of beholding his endeavours realized; or, at all events, can trace the tendency of his work? He can find no more pleasure in his pursuits than a blind mill-horse, whose continual occupation is an eternal going round and arriving nowhere! Indiscriminate combination is what no man, to my knowledge, has recommended; and the accusation is only the invention of some one who spends his time in beating the air and slaying shadows.

A style is called for which possesses vitality; for without it growth cannot take place; and to expect development is premature, when we have little or nothing to develope. Until the complacency of leading professional men is disturbed, or a new school of architects grow up, it is useless to hope that unity should pervade our work. Many sensible men already yield a tacit consent to the principles promulgated; while weak minds and small wits resort to the splenetic ridicule and starved jokes of a penny-a-liner, who, if not wasting paper, is at least much too handsomely paid at even that low rate of remuneration.

T. MELLARD READE.

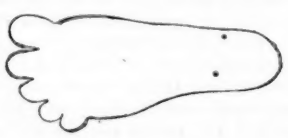
BOOTS AND SHOES.

A PLEA FOR SQUARE TOES, AND A WORD ABOUT HEELS.

THE response we invariably find amongst our readers when any few words appear in our pages relative to costume, always with good intention, might lead us to give more space to the subject if circumstances permitted. It is only occasionally, however, that we can venture upon it. Wandering, not long ago, in a public gallery, pained to a certain extent by a pair of new boots, of the shape now usually worn, we were led to look at the taper toes of the visitors, male and female. In the course of this observation the mind ran back to numerous varieties of shoes and boots which have been fashionable at various periods of English history. There have been high heels and low heels, and toes of various forms, from a long point which terminated as sharply as an arrow, and which it was necessary to fasten to the front of the hose, to the square toes of Henry VIII.'s and some other reigns. On these latter, in the present circumstances, we look with some feelings of regard. In those days the labours of the chiropodist would be but little called for; and, for the purposes of locomotion and for comfort, the old square toes must have been preferable to the narrow ones; "but, then," thousands will exclaim, "just look at the things;" and it must be confessed that this is a posing argument, for the eyes get so accustomed to matters which are in present and general use, that notwithstanding the absurdity and inconvenience of portions of our costume, we fail to notice their incongruities, and stoutly oppose all attempts at reform. We can, however, laugh at the Chinese ladies, and feel pity for their sufferings during the process of dwarfing the proportions of their feet. If, however, we look at home in the present days, there is really not much less reason for feeling surprise. Notice, for instance,

the sole of a lady's fashionable shoe; mark its extreme narrowness from toe to heel: such was never the natural form of a human foot, which in these instances, as in those of the Chinese women, has been trained and pinched into the required shape.

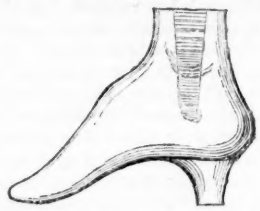
Look at the foot of a young child before the



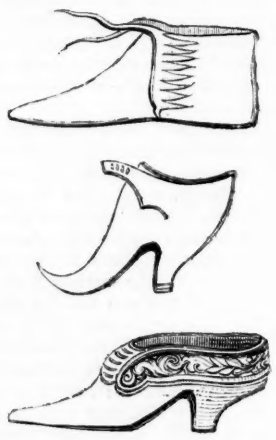
beauty of its form has been spoiled by the wearing of shoes now in use. See the narrowness of the heel, and how the sole of the foot widens until you find the greatest width across the part from which the toes spring. Then notice how the toes branch out like a fan, and how perfect is their adaptation to the purpose of assisting the general action of the feet and legs.

There is a quaint proverb that "Pride feels no pain," and certainly many will suffer much in attempting to increase personal attractions; but there can be no doubt that as regards our boots and shoes, the present form cannot be considered a true standard of beauty. Sadly pinched, we examine with interest the feet of some of the famous statues of the Greeks and Romans, which are ranged in the British Museum galleries, and find that in all of them the natural and healthy form of the feet is preserved, and we can not but think how completely out of keeping with the general beauty of form would be the boots or shoes of modern device. In our climate, in muddy streets of the metropolis and elsewhere, the wearing of sandals or the feet-covering of the Roman ladies would be impossible. There is nothing, however, if we could only be made to see that our present style of boots and shoes is unsuitable and ugly, and that they deform the feet and cripple the power of walking, to prevent shoes being made which, without those objections, would also be a sufficient protection against the weather. Some will not believe it, but it may be that the spread of scientific knowledge, together with the uncomfortable effects of the narrow toes, may cause a revival of the square toes, or at any rate a compromise between them and those which are at the present moment a source of some trouble.

Look, too, at the height of the heel on the boots of some of the demoiselles, which throws all the weight on the toes, and distorts the foot



abominably. Here is one sketched on the spot, belonging, it must be confessed, to a little fairy of a woman. Such boots are dangerous things. Few persons can walk in them without unduly exercising some muscles and throwing others out of action; producing a description of lameness. Women ought not to walk in that artificial way, but naturally, lightly, trippingly, and gracefully. Neither are the boots of men by any means perfection: they are heavy and inelegant in shape: they might be much improved by a knowledge of anatomy; but it would be of no use for a shoemaker to attempt it in the present prejudiced state of the public mind, for the public would not support him. We shall not be the intelligent people we ought to be until the principles of physiology are taught in schools,—until boys and girls know what the laws of their lives are, as well as they do the multiplication table.



We give two or three additional illustrations. No. 4 is a Roman shoe found in London, which is well constructed. No. 5 is sketched from an effigy of Queen Elizabeth. No. 6 is of Charles II.'s reign: neither of the latter can be said to be constructed on physiological principles.

Let us add a word of abuse of the ugly "tongues" of elastic boots, which are allowed by careless ladies, in nine cases out of ten, to stick out before and behind, at ankle and heel, and produce a slovenly and ugly appearance.

THE ROTHERHAM WATER-SUPPLY AND FEVER QUESTION.

A STIR is now again being made in the local board of health towards an increase of the sources of water-supply for the new works. At a recent meeting of the board, a member said the epidemic which had lately visited the [town had made the board increasingly anxious to obtain an abundant supply of water. The services of Mr. J. Lawson, C.E., of London, had been engaged, and he had laid before them a scheme for accomplishing that purpose, at a cost of 12,000*l*. The purchase of ground on which to construct reservoirs, Parliamentary expenses, &c., would increase that sum to about 16,000*l*. Mr. Lawson, who was present, gave some details and explanatians, keeping in view a rival scheme suggested by a member of the board for taking a shallow mill-dam for a reservoir, and using the Rother water. This scheme was unfavourably criticised also by the chairman and others. As to the state of the fever, it was announced that the Privy Council medical department were now in correspondence with the board, especially on the subject of the water-supply, which tends so far to explain the stir on that subject. Dr. Shearman, the local officer of health, reports an improvement in the health of the district as regards fever, the general mortality being 49; from fever alone, 6. This reduces the mortality from 44 to 37 in the 1,000. A great number of deaths are returned as diarrhœa—a disease of the same class as typhoid fever. Forty fever patients had been admitted into the dispensary during the month. The total number of patients visited during the last four months was 2,271; the number of deaths being 109. A vast number of the population have had the disease slightly, without applying for medical treatment.

NEW (R.C.) CHURCH OF KILLESHANDRA, COUNTY CAVAN, IRELAND.

THE new Church of Killeshandra stands upon a commanding site, near a village of the same name, in the county of Cavan, and is intended to supply the place of the present dilapidated and unsuitable edifice which forms the parish church. The foundation stone of the new building was laid by the Right Rev. Dr. Brown, R.C. Bishop of Kilmore, with the usual ceremonial, in May last, and the works are now far advanced.

The plan comprises nave and side aisles, north and south transepts, chancel, with chapels on the north and south sides, sacristy on the south-east side, and two porches leading to aisles at the west end. The tower and spire are situate at the north-east angle of the building, and will form an important feature in the design when viewed from the main road, which passes by almost parallel with the east end of the church, and at a short distance from it.

The total internal length, from west to east, is 95 feet; width across nave and aisles, 50 feet; and across transepts, 70 feet. The chancel is 25 feet wide in the clear, and the side chapels are 12 feet each. The height from floor of nave to ridge of roof is 50 feet; and the height to top of wrought-iron cross on spire, 135 feet.

An arcade of five bays of moulded arches (resting on cylindrical shafts) and piers divides the nave and chancel from aisles, transepts, and chapels on either side; and in the spandrils of the arches are circular quatrefoil recesses for medallions. The shafts between nave and aisles are of polished Kilkenny marble, with moulded sandstone bases set on square tall plinths of dark grey stone, and sandstone caps with square abaci hereafter to be carved.

The principal entrance is at the west end, through a boldly-treated doorway, with recessed jambs and shafts of Cork red marble, resting on moulded bases, with carved caps sustaining a deeply-moulded and enriched arch. The other entrance-doorways, in porches, &c., have square heads, the arches inclosing stone tympanums for sculpture.

The tower opens into north transept and chapel through moulded archways formed in the thickness of the walls, and will display a stone groined ceiling under bell-ringers' floor.

The roofs will consist of wrought and framed trusses open to the ridge, with curved and moulded braces resting on corbels. The chancel and chapel roofs will be panelled and moulded between the trusses, which are carried on marble shafts with caps and bases set on stone corbels. A double truss divides the chancel from nave in lieu of the usual chancel arch. All the roofs will be boarded on the back of rafters, and varnished. Between the boarding and slating a layer of felt will be introduced; and the slating, banded in colours, will be surmounted at ridge by a foliated cresting of wrought and galvanized iron.

The flooring, altars, railing, and other works necessary to complete the building, will be proceeded with gradually, as the funds permit.

Local stone, disposed in various colours, as obtained in the neighbourhood, is being used for the general walling; forming a contrast with the external dressings of light grey limestone. Sandstone, from the Dungannon quarries, has been used for the interior works, with marble shafts for nave piers and chancel roof trusses, &c. The tracery in windows will be Caen or Dungannon stone. The carving will be done hereafter.

The floors are intended to be formed of Yorkshire paving, with black and red tiles in passages of nave and aisles; and the chancel and chapels will be laid with encaustic tiles, in patterns. The altars and reredos will be executed in Caen stone, with marble shafts, panels, &c. All the glazing will be done in tinted cathedral glass, set in lead lights, diamond shaped, with coloured borders.

Mr. W. Hague, jun., of Dublin and Cavan, is the architect; and the works are being carried out under his superintendence by Mr. J. Higgins, the clerk of works, no builder being employed.

AMICABLE SOCIETY'S SCHOOLS, SCARBOROUGH. Forty-one designs were submitted for the above schools. The first premium was awarded to Mr. Stewart, of Scarborough; the second to Mr. T. C. Sorby, of London.

NEW (R.C.) CHURCH OF KILLESHANDRA, CAVAN, IRELAND.—MR. W. HAGUE, JUN., ARCHITECT.

STAINED GLASS.

Datchet Church.—Early in the year, it was suggested to some of the inhabitants of Datchet to place a stained-glass window in the church as a memorial of the Prince Consort. The idea proved acceptable, and a collection was made throughout the parish, to which almost all, both rich and poor, heartily contributed. The amount realized was about 185*l.* Three leading firms were invited to compete, and the work was eventually intrusted to Messrs. O'Connor, of London. It was found that three windows could be erected; and last week, according to the *Windsor Express*, they were fixed. The east window in the chancel contains three figures,—the centre that of our Lord, the head being taken from a copy of a fresco, by Andrea del Sarto, at Florence. Beneath his feet are two angels, bearing a scroll with the words, "Come, ye blessed of my Father." On one side stands St. Paul, representing Faith, with the words, "Being justified by faith, we have peace with God through our Lord Jesus Christ." On the other side St. John, representing Love, with the words, "God is love, and he that dwelleth in love dwelleth in God and God in him." In the lower compartment of the window are the Prince's coat of arms, with the inscription dedicating the window to his memory. One of the south-aisle windows bears two main figures,—St. Peter with the raising of Dorcas, and St. Matthew with the scene of his call. The window in the vestry, also visible from the church, is in colour, but without figures.

Llanymynech Church.—The triplet window in the western end of the parish church has been filled with stained glass by the Ven. Archdeacon Evans. The artist was Mr. F. Burrow, of Milnthrope. The subjects are as follow:—The first compartment represents Christ healing the Sick, with the symbols of St. Matthew and St. Mark; the middle, the Virgin and the infant Jesus; the third, Christ blessing little Children, with the symbols of St. Luke and St. John. This window has been erected to the memory of the Archdeacon's father and mother, as also several of his brothers and sisters.

CHURCH-BUILDING NEWS.

Wormley (Herts).—Wormley Church was re-opened on the 9th, after the addition of a south aisle, with other alterations, carried out through the munificence of Mrs. Grant, of Wormleybury, under the direction of Mr. Joseph Clarke, diocesan architect. This church was repaired and beautified in stucco, in the usual style of twenty or twenty-five years ago. The work now carried out is a return to the old style of church-building. The new aisle is built of flint, with Bath stone dressings. The side windows are arcaded internally, divided by marble shafts. The roof is solid and open: the benches are stained. A small Scudamore organ is placed at the west end, to lead the choir, next the new vestry. A fine early font remains, which has been thrown open. The sacrarium has been re-arranged, and will be re-laid with Godwin's tiles; the brasses carefully preserved; and new altar-rails by Hart are introduced. The gallery, which extended about two-fifths down the church has been shortened about a third; and it is to be hoped this may be entirely removed some day, and the church wholly re-seated; the square high *individual* pews in the rest of the church being more than ever out of place, contrasted with the benches.

Great Malvern.—The chief stone of a church to be erected at Newland, in connexion with almshouses also to be erected, from a fund of 60,000*l.*, bequeathed by the late Earl of Beauchamp, has been laid. The piece of ground on which the church and almshouses will stand, is about eight acres in extent, and the plan of the buildings is for three sides of a quadrangle, the fourth side being open to the south, the yard having a garden in the centre, and a terrace walk all round. The chaplain's house will be at one angle of the establishment, and the church at another, being connected by means of a covered cloister. The chaplain's dwelling is in an advanced state, and will probably be roofed in by Christmas next. It is built of brick, with Bath-stone dressings, ornamental barge-boards to gables, and the style is Domesticated Gothic. It also includes a board-room for the trustees, 35 feet long by 18 feet wide, with an open timber roof, and here the inmates of the almshouses will assemble on festive and other occasions. The church will be in the Early Decorated style, with chancel, chancel aisle, nave, and bell-turret. The walls will be of rubble, with Bath-stone dressings. There will be a porch on the north side of the nave for the public entrance of the parishioners, and on the south side of the chancel aisle a porch, forming a kind of campanile, underneath which the almspeople will pass from the cloister into the church. At the east end of the aisle an organ is to be placed. The chancel will be arranged after the manner of collegiate churches, as set apart for the body attached to the establishment; so that the almsmen will occupy the chancel, and the almswomen the aisle adjoining, while the general parishioners will sit in the nave. Altogether there will be 230 sittings. The east window will be of three lights, with geometrical tracery, and the font from the old church will be placed in the new structure. It is contemplated to pull down the old church, and throw the whole site into the new burying-ground. Mr. Hardwick, of London, is the architect of the church and the whole establishment. Mr. Oliver Estcourt, of Gloucester, is the contractor and builder. The entire cost will be some 16,000*l.*, and the work is to be completed by the end of 1863.

Liverpool.—The church of St. Mary Magdalene, Finch-street, has been consecrated by the Bishop of Chester. This church is the first of those erected in Liverpool under the auspices of the local clergy, headed by the Rev. Rector Campbell, as a free church—one in which the sittings, without exception, are entirely open for the use of any persons who may choose to enter the building. The edifice is simple in its proportions, and has been erected at a limited cost, consistently with the purpose to which it is devoted. The design (Gothic) was prepared by Messrs. Hay, of this town, and the building contracted for by Mr. J. Pooley.

Harrogate.—A new Wesleyan Chapel has been opened at Harrogate. It is in the Italian style, and occupies a prominent position at the angle of Chapel-street and Cheltenham-parade. Its principal front is decorated by Corinthian columns and pilasters, supporting an entablature and pediment. The principal entrance is by three arched doorways in front, leading to an inclosed corner vestibule, from which the chapel aisles and the gallery stairs are reached. The chapel, internally, is 70 feet by 52 feet, exclusive of the organ recess, and is galleried round on three sides. The pillars of the gallery are continued up to the roof, which is thus divided into three compartments, the central one being raised and circular. Accommodation, on the ground-floor and gallery, is provided for 1,000 persons. A basement story contains class-rooms, large vestry for tea-meetings, and a residence for the chapel-keeper. The architects were Messrs. Lockwood & Mawson, of Bradford.

Bensham.—Extensive repairs and improvements have been effected at St. Cuthbert's Church. The roof was found to be very imperfect. The slates have, therefore, been removed and relaid in mortar on deal sarking, which has been oak-stained and varnished. The open stoves have been removed. Standing opposite to each other, if the one burned well, it generally (says the *Newcastle Courant*) provoked a down-draught in the other; and future inconvenience has been obviated by the introduction of a hot-water apparatus, with tubular boiler, by Mr. Weeks. Four double rows of pipes traverse the church from end to end; two of them skirting the side walls, and thus preventing the usual condensation of heat and generation of cold in that part. Mr. G. Wailes (who successfully heated St. Andrew's, Newcastle) has devised and superintended this part of the alterations. Mr. W. Wailes, in addition to re-glazing all the other windows, has given a stained glass window on the south side, the subject being taken from the Parables. Gas-fittings have been introduced throughout the church. They are of polished twisted brass; and, together with the corona in the apse, have been manufactured by Messrs. Mills & Son. The whole of the seats have been re-stained and re-varnished, and the walls coloured.

Blyth.—A new Roman Catholic Church at Blyth, dedicated to "Our Ladye and St. Wilfred," has been consecrated and opened. The edifice, which is designed in the Early-Pointed style, and consists of a body, or nave, 120 feet long and 36 feet wide, is covered by an open timber roof, supported at the sides by buttresses. The east end terminates in an apsidal form, the centre portion being projected slightly forward, and is raised above the roof with a gable containing a tracery window, filled with stained glass by Mr. Barnett, of Newcastle, representing the patron saints of the church, &c. Externally, the division of chancel and nave is not perceptible; but, inside, a distinction is made in the design of the woodwork of the roof, and in the decoration of the ceiling, which is sprinkled with white stars on a blue ground, the walls also being relieved with colour. At present, only one of the two transepts is built; that on the south side, in the upper part of which is placed the organ, slightly projected through an archway into the church, the lower portion serving as a sacristy, to be connected by a corridor with the presbytery; which is of red brick and stone, with Continental character in the design. A bell-turret, being a substitute for tower and spire which it is intended afterwards to erect, stands in the angle formed by the junction of the chancel and transept. The whole has been carried out from the designs and under the superintendence of Mr. A. M. Dunn, of Newcastle. The contractor was Mr. J. How, of Cowpen; the carved work being executed by Mr. Beal, of Newcastle. The church will afford sitting accommodation for nearly 900 persons, and has been completed for little more than 2,500*l.*

Wold Newton.—The parish church of All Saints, Wold Newton, has been rebuilt and re-opened. The edifice has been seated for the accommodation of 150 persons. The architect was Mr. Fowler, of Louth.

Wolverhampton.—The Congregational Church, Snow-hill, has been re-opened after undergoing a restoration of the interior, including an apparatus for heating the building by hot water. The whole has been carried out under the superintendence of Mr. Veall, architect, at an expense of about 260*l.* Mr. Cockerill was the contractor for the builders' work; Mr. Swindley for the cleaning, decorating, &c.; and the hot-water apparatus was supplied by Messrs. Rudge & Griffiths, of Stafford.

Glasgow.—A new Free Church is to be erected for the Rev. Mr. Howie's congregation. The site is on the east side of Charlotte-street; so that the front, which is towards the west, will be well seen from London-street, and the east gable will be a conspicuous object from the Green. The area is divided into three aisles by iron columns supporting the galleries and roofs, and the aisles terminate with gables at both ends. At the east end is a hall, 57 feet long by 28 feet wide; and also a beadle's house, session-house, vestry, and retiring-rooms. The style of architecture adopted is the Early English, and the effect of the front is enhanced by the use of a black stone—obtained from Carnock, near Dunfermline—which is freely introduced in bands, and for small pillars in the window jambs and arcading. The church will accommodate about 1,100 persons; and the estimated cost, exclusive of the hall and other back buildings, is 3,000*l.* The architect is Mr. Honeyman, of Glasgow.

Calais.—A new English church has been opened at St. Pierre, Calais, by authority of the Bishop of London. The Church of the Holy Trinity at St. Pierre, as it is called, has been built at a moderate cost, and is said to be a good specimen of architecture: it stands in the midst of a manufacturing population of about 1,500 English.

SCHOOL-BUILDING NEWS.

Long Eaton.—New schools were lately opened at Long Eaton, near Derby, by the Vicar of Sheffield. The schools were erected from designs made by Messrs. Wilson & Thompson, of Derby, architects and surveyors. They are in the Gothic style, built with bricks and stone dressings, with coloured bricks inserted in bands and courses. The principal front is a gable, occupied by a traceried window, and the entrance porch. The gable is surmounted by a stone bell-turret, 40 feet high from the ground. The interior has an open-timbered roof, stained and varnished; the iron-work being painted light blue. The erection forms one continuous range, in consequence of occupying a narrow slip of land. The first room is 40 feet by 18 feet in the clear, lighted by three three-light windows at the side, and the traceried window already mentioned. The other school-room is 58 feet by 18 feet, lighted by nine three-light windows. The class-room is 15 feet by 12 feet 6 inches. The design was carried out by Mr. Morris, of Long Eaton, builder.

Woolaston.—The new school-buildings at Woolaston, Gloucestershire, are just completed. The ground plan comprises one large school-room, affording accommodation for 120 children of both sexes; a class-room, with gallery, &c.; entrance-hall, and master's house, all in accordance with the Government requirements. The walls are constructed of local stone of a deep purple colour, contrasting with the Bath stone used for the dressings. The roof of the large room is open-timbered; and this and all the other woodwork is stained. The roofs are covered with slate, two

kinds—blue and purple—being used, and thrown in alternately. The playground is surrounded with dwarf walls, with coping of Bath stone. The cost, including the site, has been borne chiefly by Mr. Morgan, of Tidenham House, near Chepstow. Mr. Durke, of Coleford, was the builder; and Mr. Purchas, of Ross, the architect.

ACCIDENTS.

Fall of a Church.—At Beaufort, one of the most ancient and remarkable buildings in the district was the old church of Waun-y-pound. Religious services were held there before any ironworks were started on the hills. Most of the old inhabitants talk of having been taught to read in the church when they were young. This edifice, however, has been used for a stable for some time past, and has long been in a most dilapidated condition. During the late boisterous weather, the old church was blown down, and it now remains a solitary heap of ruins.

Fall of a Tower.—A large portion of the Jubilee Tower on Moel-Famman has also fallen during the recent fearful storms of wind and rain. It was erected in 1810, to celebrate the 50th year of the reign of George III. The tower was from a design of the late Mr. Harrison, of Chester, and the work cost upwards of 6,000*l.* Being erected on the highest part of the Clwydian range of hills, it was a very conspicuous object.

Fall of a House.—At Port Royal, Exeter, an old house has fallen, killing and burying several children, and injuring others. The house had been in a dilapidated and dangerous state for some time, but no owner could be found for it, the property being in Chancery.

Fatal Fall through a Floor.—At 46, The Stowage, Deptford, a woman was coming downstairs from the room on the first-floor, when the flooring broke in under her, although a very light person, and she fell; one of her legs being thrust completely through the ceiling of the room on the ground-floor. She was far advanced in pregnancy, and the injury sustained was so great that, notwithstanding medical aid was promptly obtained, she expired from loss of blood within an hour. A piece of the flooring was produced before the coroner's jury: the wood was completely destroyed from dry rot. The coroner, in summing up, remarked that legally the owner of the property was liable to be proceeded against by the husband of the deceased for the loss sustained by the death of his wife. The jury recorded a verdict in accordance with the facts, and at their request the coroner undertook to communicate with the district surveyor, and also the police authorities, upon the dangerous state of the house.

Collapse of a new Gasometer.—A singular accident has happened to a gasometer in Halifax. The gasometer, a new one, 100 feet in diameter, and weighing 70 tons, was being tried with air; and owing, it is supposed, to the imperfection of the metal tank, one side of the gasometer was caught, causing the immense body to break through the middle.

THE NEW STYLE.

THE letters of your two correspondents, the "Penny-a-liner" and the "Mediæval Mason," offer, each in his peculiar way, an admirable comment on the "utterings and strivings" after a new style which have lately appeared in your columns.

Will you let another, following in their footsteps, repeat in another form the inquiry, if the two great streams of Classic and Mediæval art are quite dried up, and if we are to accept as an unquestioned fact, that these two grand styles have served "their day and generation," and, like great men, *must* "fall on sleep"?

I cannot think that the advocates of the new style, though undoubtedly bold men, will be sufficiently venturous to give an open and affirmative answer to the question, however much they may seek to imply it, particularly when they must see around them, in their own and foreign lands, evidences of the life which each still possesses, and constant proofs of the ability of the great masters of our noble art to adopt styles which had their origin in past ages to the wants of the present day. Viewing the subject in the broadest possible light; and taking, first of all, Mediæval art; I would remark that its ablest followers among us rarely fail on the one hand to adapt it to modern requirements, or on the other to produce originality in their designs; and, above all, we never find them dissatisfied with the style they employ on the score of want of elasticity or other defect. If we look at Classic art as practised in France and Belgium at the present day, we see, in the new buildings of the Louvre, and of the new Boulevards in Paris, and in the new buildings of Lyons and Brussels, many indications that life is not yet extinct, and that in these productions there is anything but servile copyism of either the forms or the ornamentation of the fifteenth century.

In fact, I believe that in architecture and its two leading styles, as in all systems, there is present an active and secret principle analogous to that which is known in the human body as the *vis medicatrix naturæ;* and that, by the cherishing of this principle, healthy life in these, as in all systems, will be maintained: in other words, I am confident that what to our friends has seemed a barren field would, with laborious working and careful cultivation, yield a rich harvest.

One hardly knows whether to characterize these manifestations as the working of impatient, disappointed, or restless spirits: they are, at all events, dissatisfied, and one would feel curious to hear some account of their labours in a particular branch of art which they now feel disposed to throw over, describing it as barren, unsuited for present objects, and only capable of being servilely reproduced. It would also be instructive to know how long time has been spent in the study of a particular style,—the Mediæval, for instance;—how many ancient buildings visited; what amount of actual and careful measurements taken; and many more particulars which I cannot now enumerate; for there is a very grave suspicion that these gentlemen have neither spent the time nor given the trouble in seeking after the capabilities which the old styles possess, and of which they so loudly proclaim the want.

I would ask you, sir, in conclusion, if you have ever fallen in with an essay contributed some time ago by the "Country Parson" to *Fraser's Magazine*, "Concerning Veal, with Thoughts on Immaturity"? If not, I can recommend it to your serious consideration; and I would particularly ask you, sir, to use all your power and wage an exterminating warfare against this Architectural Veal of the nineteenth century. It must soon come to an end; but, in the present state of affairs, must have an unsettling, not to say, baneful effect on those students and young men who are commencing their architectural career; and hence the sooner it is stopped the better. At any rate, the lovers of Classic and Mediæval art may both rest assured that the foundations of each are too firmly set to admit of their being puffed away by a breath which is only strong enough to blow bubbles from a tobacco-pipe.

X. Y. Z.

ARCHITECTS' ASSISTANTS AND PUPILS.

SIR,—With reference to recent letters in your paper, it unfortunately happens that there are too many architects who only care to obtain pupils without thoroughly instructing them; and I regret to state that there are many who never do employ an assistant when it becomes necessary to pay him a salary. A friend of mine was articled in the cathedral city of Lincoln, to an architect there: his father was a farmer, and paid a good premium with him, and he remained, I believe, for upwards of five years; thus making a total outlay for him of from 800*l.* to 1,000*l.* When his articles were completed, he received some splendid testimonials from the persons by whom he was employed; left their office; and remained out of a situation for upwards of half a year. At last, through an advertisement in the *Builder*, he obtained a situation for a few months, to help out a press of work in an office at Hull. He then returned home to his friends, where he remained some months, notwithstanding that he advertised; and at last, by an advertisement in your paper, obtained a situation, I believe at Wrexham, at the enormous salary of 80*l.* per annum; taking the entire management of an architect's office there! I suppose that he did not like to refuse the offer for fear that he should not hear of a better; and so preferred the small salary to remaining longer out of a berth. The fact is, architects, like you printers, ought to employ a given number of assistants in proportion to the number of their pupils; but I regret to say that the majority of architects' offices in the country are *rat* offices, without, even in most cases, *one* assistant besides the principal. It is nonsense of "Tristram" to say that a competent man can *command* a good salary, for he must know that wages are, like bricks and mortar, a marketable commodity, governed by the law of supply and demand; and so few assistants being kept, and so many being yearly grown, the overstocking of the market is the consequence; and, therefore, in consequence of the great competition, the decrease in salaries. True it may be, that a man having had twenty or thirty years' experience can command a good salary; but when first starting in the world, an architect's assistant meets with but poor encouragement; and having had such a fortune sunk, he gets but poor interest for his money, letting alone a year's slavish work.

PRO PATRIA.

QUEEN'S CROSS, NORTHAMPTON.

SIR,—Your correspondent, Mr. Roberts, appears to be highly indignant at the idea of my presuming to express an opinion upon the above subject at variance with his own, and is as reckless in his assertions concerning me as he was in his remarks upon the cross.

When speaking of my paper, he says, "The objects of which were to vindicate the purity of the cross, and to attack me;" and again, "I presume the paper was sent to you so as to serve the purpose of attack in a new and extended form." With respect to the alleged personal attack, neither of these assertions has any more foundation in fact than had his sweeping condemnation of the restoration at the cross. I did not send the paper to you; nor do I know from what source you obtained it; and, therefore, could not have sent it for the purpose of "attack" in any form. But suppose I had sent it: I have yet to learn that I should have been guilty of more pride or imprudence than is Mr. Roberts in sending *his letter* for insertion. As to the paper being intended as an "attack" upon Mr. Roberts, I can only say that if we may not express an opinion upon archæological subjects, at variance with the assumed infallibility of some of the students thereof, without incurring the risk of being charged with personality; why then there is an end to all controversy; and those who assume infallibility must be regarded as archæological oracles.

Mr. Roberts, in the impetuosity and excitement of his feelings, gives utterance to another statement, as far, and *even further*, removed from fact, than those to which I have already referred. He says,—"Mr. Law's paper throughout bears the impress of a deprecating spirit, as though he knew perfectly well that it has suffered; indeed, he directly admits it in another part of his lecture; and leads his readers, nevertheless, to infer that, from his intimacy with Mr. Scott, that gentleman agrees with him. I should like Mr. Scott, who does know good from bad, to undeceive the lecturer." This statement, so far as it relates to Mr. Scott, can best be described in Mr. Roberts's own favourite language, as applied to Mr. Blore's restoration of the cross—"It is altogether a fabrication and invention" of Mr. Roberts. It is patent to all who may have read my paper, that I only once refer to Mr. Scott; and that is in the prefatory remarks, where I venture to eulogize his beautiful work, the "Martyrs' Memorial," at Oxford.

Moreover, Mr. Roberts says "the whole matter has been, as I think, exhausted locally,"—I suppose he means when he issued his mandate in the *Northampton Mercury*. Allow me to say that I think that was only, as it were, the *beginning* of the subject; for, in consequence of what Mr. Roberts then said, I was induced, with the assistance of my two sons and Mr. Irving, to make a careful survey of the cross; and have since prepared a series of drawings, including plans and elevations and sectional details of every moulding in the structure, from actual admeasurement. I intend to present a copy of these drawings to the Architectural Society of the Archdeaconry of Northampton, in the library of which they may at any time be seen and commented upon by any person interested in the subject.

E. F. LAW.

*** The correspondence having become entirely personal, must end here.

PATENT STONE AND BRICKS.

SIR,—In a late number of the *Builder* you say Mr. Westmacott has left for your inspection two specimens of artificial stone for which he has taken out a patent; one of which consists of lime, sand, carbonic acid, and water; and that white pit or silver sand was used, with a pressure of five tons to the square inch, to compress it to the required shape; but what pressure they will sustain you are not able to pronounce. The other specimen was composed of *calcined* river sand, *faced* with silver sand, and had four tons compression, &c.

Now, sir, in the onset, allow me to say my re-

marks are not made with any spirit to deteriorate another's invention, but rather by way of emulation as to the superiority of patents for this material. Doubtless there are good points in many, or indeed all of these; and it is, in my judgment, a very important matter to discuss, as it tends to the advancement of science, and also to the comfort of the population of this kingdom and of other places in the world.

The Emperor of the French and his Government have recently lent their sanction and influence to an invention of the same kind by Mr. Coignet (an article on the subject may be found in the report of the Scottish Agricultural Society, published by Messrs. Blackwood & Sons). The Paris Universal Permanent Exhibition being about to open, it may be well to exhibit some specimens, and endeavour to outvie Mr. Coignet. It appears strange that the old system of brickmaking, with all the vicissitudes of the elements to contend against, and the advancement of science in the present age, should scarcely have advanced any important step.

I have lately been making bricks and other articles of an ornamental nature (and which are also patented), I take it of a less complicated nature; inasmuch as the process does not require skilled labour; is exceedingly simple and inexpensive; requiring only wood moulds, a shovel, and an old trowel.*

The articles produced are the colour of Portland stone, and can be made on any spot where either gravel, pit sand, road sand, or chalk abounds; or, indeed, any hard material: in fact, they are simply concrete: they present an even surface, square and good arris, are very hard, and can be used in a few hours after they are made: one other advantage is, they are nearly non-absorbent.

With regard to pressure, I would merely quote from the report made on these bricks by an authority at the South Kensington Museum:—

"Concrete brick at a pressure of,—
3 tons 15 cwt., symptoms of fracture.
9 tons 10 cwt., broke through centre.
10 tons, crushed.
Chilton's Suffolk brick,—
3 tons 15 cwt., broke at once.
Chilton's Suffolk Malms,—
3 tons 15 cwt., broke at once.
Common stock brick,—
6 tons, broke in centre.†
Bodmin Brothers' compressed lime and sand brick, 10 tons,—no result.

These experiments were made between iron and iron," (and, it is added) "the concrete brick is decidedly good, Bodmin's brick superior, but they are double the price of the concrete brick."

My desire is to arrive at the best way of producing these articles. Doubtless there are good points in the different modes, and something may be gathered from each which may produce an approach to perfection.

I might add that in this place (Reigate) sand of many shades of colour, from silver sand to red, is found in large quantities. J. W. SUMNER.

* This process appears to be identical with that pursued at Reading.—ED.

† A good stock brick would bear very much more than this.—ED.

A HYDRAULIC DIFFICULTY.

I HAVE been much perplexed by a circumstance that has occurred in the course of bringing a supply of water by pipes to my house, which appears to me quite inexplicable on the received doctrines of statics and hydraulics, as usually laid down in the books.

The case is this: pipes were laid from a tank about 30 feet above the level of my ground-floor, with a uniform fall for about 300 feet; then, with a rise of 4 feet for about 200 feet, when they enter the house: there are two or three horizontal elbows, but no syphon-shaped rise and fall.

On opening the communications, I expected of course an immediate flow of water; but, to my great surprise, for three whole days not a drop of water reached the taps in the house. It then occurred to try the effect of a force-pump. Accordingly the pump was applied at the lower extreme of the pipe, and two or three buckets of water injected, by which means the air in the pipes was driven backwards into the tank. On removing the force-pump the water immediately flowed, and has continued to flow ever since.

I believe practical men are quite aware of the power of air to stop the flow of water in pipes: can scientific men give any explanation? As far as I know, the books are quite silent on this point, though one of so great importance. To me it is quite inconceivable how air in a pipe, open at both ends, can possibly resist, and actually stop the flow of water pressing upon it with a head (in my case) of 30 feet.

The water is pure spring-water; and I am satisfied no sediment or obstruction of that kind could possibly have occurred so as to account for the stoppage in question. P. P.

*** The size of the pipes is not given, or we might see what was due to friction.

SANITARY CONDITION OF ST. PANCRAS

THE sixth annual report on this subject, for 1861, by the local medical officer of health, Dr. Hillier, has been printed by authority of the vestry. We may quote the following passages from it:—

"If the population in the middle of the year be taken to be the same as was determined by the census in April, namely, 198,788, the death-rate is found to have been 2·3 per cent., or 230 per 10,000.

In London, as a whole, the death-rate was very nearly the same, about 2·317 per cent. It was lower than this in the other northern districts of the metropolis, so also in the western districts and the southern districts. The death-rate was higher in the eastern districts, about 24 per 1,000, and higher still in the central districts, about 25 per 1,000. These facts are exhibited in detail in Table A.

As compared with preceding years, the death-rate in 1861 was higher than in 1860, about the same as in 1859, lower than in 1858, higher than in 1857, and about the same as the mean death-rate from 1848 to 1857.

The relative infantile mortality of the several sub-districts stands in the same order as their relative density of population, Kentish-town being the least densely populated, and Somers-town the most densely, whilst Regent's-park stands second, Camden-town third, Gray's-Inn-road fourth, and Tottenham-court-road fifth on the list.

It is thus seen that crowding exercises an important influence on the mortality of different parts of the parish; this is quite in accordance with what is found to be the case in other places. Whatever exists to contaminate the air is of course much intensified by density of population, and diseases of an infectious nature are more readily spread in thickly-populated localities."

"There are a few houses in this parish occupied by as many as fifty persons, and a great many occupied by twenty-five or thirty, and as most of the air passes up from the street door into the dwelling-rooms on the basement, and from them into the staircase, and thence into the rooms above, and so on upwards till it reaches the top story, it can easily be understood how much it has lost of its oxygen or life-giving portion, and how much it has become charged with carbonic acid and other products of decomposition which are death-giving or disease-breeding ingredients, before it reaches the roof. At this point it is frequently stagnant, and as there is no window which will open, or any skylight or opening to the roof, there is no means of its being renewed near the top of the stairs.

To diminish the evils attendant on this state of things, free openings on the staircases and in the roof are required, as well as windows in the dwelling-rooms which open from the top as well as at the bottom."

"It has been estimated that the amount of sickness prevalent in a place bears a tolerably constant proportion to the mortality.* The law of the proportion is found to be 'that the numbers constantly suffering from acute sickness at any year of age (from fifteen and upwards) will amount to double the number of yearly deaths; and the number of invalids or permanent sufferers from past sickness will be equal to the number of annual deaths.' Consequently, as the deaths in St. Pancras during 1861, at the age of fifteen years and upwards, numbered 2,227, we may conclude that there were, on an average, constantly on the sick list,—unable to work, dependent on past savings, or on the assistance of friends, or compelled to throw themselves on the parish,—6,681 adult persons, of whom one-third were permanently disabled, so that they will never again be able to work for their maintenance. The adult population—that is, the population above fifteen years of age—was, in 1851, about 68 per cent. of the whole: if the same proportion existed in 1861, the number living above fifteen years of age at the census would be 135,176; so that we should have one person out of every twenty constantly sick; and of these, one-third, or one of every sixty persons in the population, permanently disabled. A large proportion of these was amongst the poor, many of whom were thus brought on to the rates, for there is no cause of pauperism so prolific as sickness.

The numbers above bear no reference to the sickness of children; but it must be borne in mind that very much of the permanent disability occurring in adult life, and the liability to diseases which interrupt the work of adults, is dependent on the sickness of childhood.

Every sickness of an adult is a money loss, representing either an increased burthen on a family, or a tax upon the purse of the ratepayers. It has been estimated by Dr. Farr that the average period of acute sickness is about thirty-six days, so that the loss is equivalent to about one-tenth part of the year's work. Now, seeing that about one in thirty of the community was constantly suffering last year from acute sickness, and each one on the average was ill about thirty-six days, it follows that to every three adults there was, on the average, one attack of acute sickness during the year.

By sanitary measures, we have good reason to expect that the mortality may be reduced in St. Pancras from 4,579, or twenty-three per thousand, to 3,379, or seventeen per thousand,—a reduction of 1,200 lives in one year. The amount of prevalent sickness would probably be still more reduced, because not only would the number of attacks be much reduced, but the duration of attacks which ended in recovery would be much shortened; for nothing retards and protracts the period of convalescence so much as impure air."

The Appendix to the report contains some valuable tables, such as on the mortality of mews, &c.

* "On the Statistics of Health," by T. R. Edmonds, esq., B.A., Appendix to Report of the Proceedings of the Fourth Session of the International Statistical Congress, page 450.

RESPONSIBILITY OF ACCIDENTS.

RECENT FALL IN ST. MARTIN'S HALL.

THE case Sabey *v.* Stephens, tried in the Bail Court a few days since, was an action for the recovery of damages as compensation for the death of the plaintiff's son through the alleged negligence of the defendant. The defendant pleaded not guilty.

Mr. Serjeant Parry and Mr. Day were counsel for the plaintiff: Mr. Hawkins, Q.C., and Mr. H. James were counsel for the defendant.

This was a second trial, and occupied the whole of the day. On the first trial the jury were discharged without agreeing to a verdict. The deceased was a carpenter, earning 33s. per week, and contributed mainly towards the support of his widowed mother, the present plaintiff. The defendant was a zinc-worker in Old-street-road, St. Luke's, and had contracted to fix the zinc sun-lights in St. Martin's-hall, for which purpose it was necessary to cut away a portion of the roof; and in order for the men to do their work a scaffold was necessary. The defendant, accordingly, procured the necessary materials, and employed men, who constructed a swing scaffold for the use of the workmen. On the 3rd January last six men, including the defendant, were on the scaffold, when one of the poles broke, and all the men, with the exception of the defendant, fell to the ground; the defendant escaping by holding fast to a gas-pipe, suspended as it were in the air, until a ladder was procured, and he was rescued from his perilous position. The deceased and another man were killed, and three others were seriously injured. The evidence went to prove that the materials of the scaffold were good and sound; and the negligence imputed to the defendant was his not employing proper persons to construct it. It was also urged that three poles instead of two should have been used for the planks to rest on.

The jury, after being locked up about an hour, returned into court with a verdict for the defendant.

COMPENSATION CASE: DIFFERENCES.

Nichols and the North London Railway, City Branch.—A compensation case has been recently heard at the Law Institution, before Mr. Lockyer, as arbitrator, which presents some points of interest. The proposed City branch of the North London Railway will pass through the west side of Nichols-square, Hackney, belonging to Mr. John Bowyer Nichols, the patriarch of printers; and the inquiry to which we allude was for the purpose of ascertaining the amount to be paid by the Railway Company for the houses they propose to take, as well as to assess any damage that might be occasioned by reason of the railway passing through the property. Nichols-square lies between Hackney and Kingsland-road, and occupies a rather peculiar position, having but one entrance from the Hackney-road, protected by a lodge, and having no communication with the surrounding streets. The square contains 122 houses, let at rents varying from 22*l.* to 26*l.*, and covering an area of about 5 acres, and is inhabited by a rather superior class of tenants. The houses proposed to be taken by the Railway Company comprise the whole of those on the west side of the square and five houses on the north and south side, producing a gross rental of 472*l.*, and occupying an area of 2 roods 18 perches, including two pieces of vacant ground 70 feet by 12 feet 6 inches and 70 feet by 5 feet 6 inches. Mr. Driver, Mr. Clifton, Mr. I'Anson, and Mr. Foster were called on the part of the claimant, Mr. Nichols, and were examined by Mr. Phipson; and Mr. Pownall, Mr. Shaw, Mr. Charles Lee, and Mr. Clark were called on behalf of the Railway Company, and were examined by Mr. Lloyd, who was counsel for the Company.

Mr. Driver estimated the value of the property taken, including 10 per cent. for compulsory sale, at 9,010*l.*, and considered that the rest of the property would be depreciated to the extent of one-fifth, being the difference between twenty and sixteen years' purchase, which latter amount he assumed would be all the property would realize if an inferior class of tenants were substituted for the present yearly tenants. Mr. Clifton valued the compensation at 14,610*l.*, being 8,965*l.* for the houses taken, 5,545*l.* for the depreciation of the rest of the property, and 100*l.* for the two pieces of ground.

Mr. I'Anson made the total 14,837*l.*, or 9,064*l.* for the houses and ground taken, 5,000*l.* for the damage to fifty-five houses, and 773*l.* for the depreciated value of the reversion to forty-three houses let on building leases.

The witnesses for the claimant all agreed in capitalizing the net rental as worth twenty years' purchase from the compactness of the estate and the character of the tenants.

For the Railway Company Mr. Pownall and Mr. John Shaw had prepared a joint valuation, in which they estimated the value of the houses, &c., required, as worth 18 years' purchase, or 7,405*l.*, and assessed the damage to six houses, three on each side of the railway, in the same manner, at 432*l.*, making a total of 7,837*l.*

Mr. Charles Lee capitalized the rack rents at 14½ years' purchase, or 7 per cent, and the ground-rents at 28 years' purchase, with 10 per cent. for compulsory sale, making a total of 7,595*l.* Mr. Lee made no allowance for the vacant ground, nor for any depreciation to the remaining part of the square; and observed, in giving his evidence, that he had considerably modified his views as to the damage caused to house property by railways, and had found by experience that the popular apprehension that had existed on the subject was not borne out by results.

Mr. Clarke took the same view as Mr. Lee, and estimated the property to be worth 18 years' purchase, with 10 per cent. for compulsory sale, or 7,306*l.*; and observed that under ordinary circumstances he should not have considered it as worth so much; but looking to the peculiar situation of the property, and the care that had been exercised in its management, he had formed a more liberal estimate of the value.

The arbritator has not yet made his award.

LAW OF AWARDS.

The London Dock Company v. *the Parish of Shadwell.*—This case (in the Queen's Bench, before Mr. Justice Wightman and others) involved an important principle as to the rating of property of dock companies. The company in this case having been rated at a value of 30,000*l.*, appealed, and the matter was referred to arbitrators, with an umpire. The award reduced the value to 26,300*l.* The company were not satisfied, and applied to the umpire to state the principle of his assessment. Under the advice of Mr. Phipson, Q.C., he stated that the principle he had adopted was to fix the value of the rent which might be obtained from a tenant from year to year, first fixing the value of the whole docks, and then dividing the value among the different parishes, according to the area.

Mr. Bovill, Q.C., upon this moved for a rule to remit the award back to the arbitrators, as made on a wrong principle.—Rule *nisi.*

PATENTS CONNECTED WITH BUILDING.*

A Material or Sand for the Formation of Moulds for Casting Iron, and for other like Purposes.—*J. Gjers.* Dated March 4th, 1862. The patentee claims the use of furnace slag reduced to the required state of fineness or division (either alone or mixed with natural sand) in the formation of moulds for casting iron or other metals.

Improvements in Machinery for Breaking Stone.—*J. L. Charcouchet.* Dated Feb. 27, 1862.—A strong cast-iron frame-work contains, or encloses, a sifting apparatus formed by a series of parallel bars of the shape of prisms, on which the stone to be broken is placed. The sides of the sifting apparatus are firmly bolted to a timber frame, to the longitudinal cross timber of which a powerful hinge is fixed, whereon two movable anvils work underneath the sifter. These anvils have grooves or channels cut on their faces, so as to correspond with the bars of the sifter into which they fit when the anvils are in their uppermost or horizontal position. These anvils are raised to a horizontal position, and lowered alternately to an angle of about 45°, by means of eccentrics, working on a shaft at the top of the cast-iron standards of the machine. From these eccentrics connecting-rods descend, one on each side of the machine, and are attached by hooks to the hammers. Above the hinges of the anvils a broad leather or steel band passes over a copper pulley, and is attached to the hinged extremity of the anvils by means of a projection or stop running along the ends of the channels. Two cranks on the same shaft, which works the eccentric, give a vertical reciprocating motion to two connecting-rods, at the lower end of which a heavy block or hammer is attached. These hammers, aided by guides in the standards, are consequently caused to descend upon the stone placed on the sifters and movable anvils. The stone is thus broken into pieces, the size of which may be regulated according to the spaces between the bars of the sifters.

Improvements in Ventilating Carriages for Common Roads.—*J. F. Woodall.* Dated April 4th, 1862. The patentee claims the application to carriages or vehicles for common roads, wherein fresh air is admitted through openings formed in the front or sides, or both, of the carriage, whilst the internal air is roused to escape either directly through an opening formed in the roof, or through an opening into a conducting tube, whence it passes out through an opening at the back of the carriage; the said openings for the ingress or egress of the air being either uncovered or more or less hidden by suitable gratings or ornaments, and either provided or not with suitable valves for regulating at pleasure the extent of ventilation, as described.

* Selected from the lists in the *Mechanics' Magazine.*

Books Received.

On Photozincography and other Photographic Processes employed at the Ordnance Survey Office, Southampton. By Captain A. de C. Scott, R.E., under the direction of Colonel Sir Henry James, R.E., F.R.S., &c. London: Longman & Co., 1862.

The photographic processes employed on the Ordnance Survey have now, it appears, been brought to a high state of perfection; and it is interesting to know how this has come to pass. The volume under notice has been published by permission of the Secretary of State for War; and, besides details of all the materials and modes of manipulation used, it contains specimens of maps, documents, and engravings copied and reduced by the processes described, and which fully corroborate what has been said as to the state of excellence in such processes to which the officials have arrived.

The chief feature in the photozincographic process is thus described under the head of "The Preparation of the Positive Photographic Print in Greasy Ink":—

"This part of the process is based on the property possessed by the bichromates, during their reduction by the action of light, of rendering insoluble certain organic substances, such as gum, gelatine, and albumen, with solutions of which they may be mixed.

In virtue of this property, if a solution of gelatine and bichromate of potassa is spread on paper, and, when dry, exposed to light under a negative of an engraving or a plan, the lines of the drawing will be represented by insoluble lines on the coated paper; while the ground, having been protected from the action of the light by the dense negative, will remain soluble. If the paper is now coated with greasy printers' ink, and damped at the back, the soluble parts will swell, and the lines will be in intaglio; and when rubbed gently with a sponge dipped in gum and water, the ink overlying the soluble parts (now again viscid, and in a dissolving state) will be removed, while it will adhere to the insoluble parts. The engraving or plan will then appear in black ink, which can be transferred to the surface of zinc or stone. This is the gist of the whole process; but, though it appears so simple, in practice it requires care and judgment, and many difficulties were met and overcome before very good results were obtained."

The zinc-plate is completed by an etching process. There is, also, a photolithographic process in use at the Ordnance Office, as well as a photo-papyrographic one for taking a few copies inexpensively.

The first attempts to use photography in the reduction of the Ordnance maps were made by Pouncey's carbon printing process, as explained in the preface; but we observe, from a communication by Mr. Pouncey in the daily papers, that he claims much more than this; and proposes to exhibit publicly the production on stone of photographs taken direct from nature, while his previous process, identical as he claims in principle with that of Sir H. James, and simultaneously with that of Mr. J. W. Osborne, of Melbourne, in Australia, refers only to copies.

One of the several steps made towards an easy mode of lithographing photographs is that of Herr Burchard, of which it is said, — "A method has at length been discovered which is likely to cause an entire revolution in this particular branch,—a revolution hardly less sweeping, and perhaps even more important in its effects, than the starting of lithography by Sennefelder, or the rise of the photographic art under the hands of Mr. Talbot. For this progress we are indebted to Herr Burchard, a working engineer in the central staff of the Prussian army; and who, from the multiplication of geographical photographs, was led to extend his researches to the more difficult field of drawings and pictorial designs. The process, so far as it regards the transference of the photographic negative to the stone, and the preparation of the latter for print, is the secret of the inventor. Once prepared for print, the stone, which is taken from the well-known Solenhofen quarries, looks exactly like the common lithographs, but in so far differs from the inferior products of the simple art, that it admits of an almost unlimited number of copies being taken. One instance will suffice to give an idea of this latest progress in the photographic art. On a variety of drawings being lately exhibited for a new town-hall in one of the German capitals, a certain design of Herren Schmidt and Strauch attracted considerable attention; but, as it happened to become a subject of jobbery, and was not to be accepted in consequence, would have been hardly accessible to larger circles of connoisseurs without the invention of the new art. Availing themselves of Herr Burchard's process, the architects have now issued an edition of their designs for 3*l.* 10s., which they would not otherwise have been able to offer under ten times the price. It may be mentioned, as another striking advantage, that they were enabled to get the copies struck off in a few days; while, by the old process of lithography, and the necessary reduction of the original drawings to a smaller standard, a year would have been consumed, if not more." By comparison with the progress at the Ordnance-office, there does not appear to be anything particularly new in this quotation; unless it be involved in the obscurity of the "secret" hinted at.

International Exhibition, 1862. *The Mineral Resources of Central Italy; including a description of the Mines and Marble Quarries.* By W. P. Jervis, F.G.S., Assistant-General to the Italian Special Commissioners for the Exhibition. London: Stanford. 1862.

A very detailed account is here given of the mineral resources of central Italy, chiefly in marble and alabaster quarries. Serpentine, boracic acid and rock salt, iron, copper, lead, and other metals and minerals are also included in the description; and there are portions devoted to Etruscan metal work, and to the mineral fuel and soils of Italy. Some of Mr. Jervis's notices of the mineral riches of central Italy appeared in the Journal of the Society of Arts. The present appearance of the work is well timed.

Arithmetic: its Principles and Application; designed for the Use of Schools. Modernized and adapted to the present state of Commerce. By James Hickie. London: Simpkin, Marshall, and Co. 1862.

This appears to be a laborious and carefully prepared volume. It embraces, besides the ordinary run of such books, arithmetical matter connected with building and loan societies, with a glossary of arithmetical and business terms, and information on a variety of subjects calculated to interest the man of business. The author was formerly, he states, for many years mathematical master in the Liverpool Institute, and he is the author of a Key to Rutherford's edition of Hutton's Course of Mathematics. His present volume ought to come into use.

Miscellanea.

The Prince Consort Memorial.—Four of the architects engaged in preparing designs for the proposed national memorial of the Prince Consort addressed a joint letter to Lord Derby, the chairman of the Queen's Committee of Advice, asking for an extension of the time allowed for that purpose, from the 1st of December to the 1st of January. The committee have acceded to the request, but with an intimation that no further extension beyond the 1st of January can be allowed. We understand that the committee have asked for a great amount of work, as to design, and ten or twelve large drawings.

The Railway Bridges across the Thames in London.—The Thames will shortly be crossed by no less than five bridges for railways. The Charing-cross Railway will have two of these bridges, one at Hungerford, and a second at Cannon-street, for the City extension. The London, Chatham, and Dover will have one near Blackfriars, to bring that railway into Farringdon-street. There is a bridge now nearly completed higher up the river, for the North and South London Junction, which will admit of the trains of the London and North-Western and Great Western Railways passing to the Surrey side, and these can re-cross the river by the railway bridge at Battersea, and avail themselves of the West-end station at Pimlico.

An Example to Working Men.—The following notice of a Kidderminster man, now residing at Wilton, where there are carpet manufactories, appears in a Salisbury paper: — "We have much pleasure in recording the success, through study and perseverance, of William Young, a weaver, in the employ of Mr. G. F. Lapworth. From the Southern Counties Adult Education Society, which holds annual examination for the purpose of encouraging education among the working classes, Mr. Young has obtained the following certificates and prizes, viz.:—In 1859, for an examination passed in May, a certificate of the second degree, with a prize of 10s. in books; in 1861, a first prize of 2*l.* for an essay on 'Ventilation and Cleanliness;' in 1862, for an examination passed in March, a medalist's certificate, a prize book, and bronze medal; and for an essay sent in June last, on 'The Principles of the Friendly Society and Savings Bank, their Differences and Excellencies,' another prize of 2*l.* We trust that the above facts will be an inducement to other working men to pursue a similar course."

Mr. Leech's Sketches.—Mr. John Leech's admirable *Punch* sketches, full of fun, and as pure as a mother's teaching, are now to be seen at the Auction Mart, near the Bank, to which place they have been removed from the Egyptian-hall. Several new pictures, not previously exhibited, are added.

An Albert School of Art.—A project has been started at Hanley to convert the School of Art there into a memorial of the Prince Consort. About 1,200*l.* are required to carry out the design; and the Mayor of Hanley, Mr. H. Boothroyd, has offered a donation of 150*l.*, on condition of the whole sum required being obtained. Upwards of one-half of the amount has been already promised.

Liverpool Architectural and Archæological Society.—A meering of this society was held at the Royal Institution on Wednesday evening, the 5th inst.; Mr. Weightman, the president, being in the chair. Mr. Dixon exhibited a new plan for making French casements watertight; and the hon. secretary announced some donations by Mr. Ellison and Mr. Griffiths of plates and books to the society. Mr. Frank Howard then read a paper, entitled, "The History of Modern Art in England." The next paper will be read by Mr. S. Higgins on the 19th of November, and will be entitled, "Renaissance and Italian Architecture, and their English, French, and Transalpine Offshoots."

Alnwick Sewage Experiment.—The Duke of Northumberland has forwarded to the Newcastle Farmers' Club a paper prepared at his Grace's instance, in order to show the results of experiments instituted under his directions at Denwick for the purpose of testing the utility of town sewage in agricultural operations. The results are rather unsatisfactory; the sewage, it was considered, being too much diluted; and after the paper, with its detailed reports from 1859 to 1862, inclusive, had been read, the general opinion of the farmers present, according to the report in the *Newcastle Courant*, seemed to be that the application of town sewage in agriculture, especially where increased water supply in towns produced excessive dilution, would prove unprofitable; unless, as in the Meadows at Edinburgh, the expense of pumping machinery be rendered unnecessary by the suitability of the natural level of the soil. Several speakers remarked that the agricultural world were not the less indebted to his Grace for his communication because the experience therein recorded had not proved successful: on the contrary, his Grace had thus considerately erected a warning beacon to those who might otherwise have gone to the expense of costly machinery, only to result in disappointment. Many persons were ready enough to publish the results of experiments which had proved successful, but it was not every one who had the moral courage to publish the results of experiments which had turned out unsuccessful.

Townhall and Market Improvement at Carlisle.—A plan for these purposes, by Mr. J. Gordon, the City Surveyor, has been lithographed by authority of the Carlisle town council, and exhibited in the townhall for public inspection. The townhall, on this plan, would front towards English-street, and would contain, besides various other accommodation, a post-office, 112 feet by 35 feet; an assembly-room, 90 feet by 60 feet; and eight first-class shops. The material would be stone. A new street commences opposite the hall, and in line with Victoria-place. St. Alban's-row is widened and set back to the same line; as are also the guildhall and adjoining buildings; so that there would be a straight line of street from near the corner of Castle-street to the end of Spencer-street and Burlington-place. The corner of Castle-street is rounded and set back so as to widen the entrance to that street. The breadth of Fisher-street, at top, is doubled; and Rosemary-lane is removed to the end of the Friends' Meeting House, so as to form nearly a straight line from Castle-street, through Brown's-lane to Scotch-street. The covered market would be 240 feet long by 120 feet broad, surrounded by a wall which would be a party-wall between the corporation and the purchasers of the front shops which abut thereon. The following statement of cost is given with the plan:—

Total estimated cost of property required to complete the proposed improvements	£96,150
Cost of building new townhall, market, and grain stores, and other expenses as shown in report	19,500
	£115,650
Deduct value of new building sites which can be sold by the corporation	90,963
	£24,687

Interest at 4 per cent., 988*l.*; estimated income, 1,735*l.*

The Middle-Level Catastrophes.—At a recent meeting of the Middle-Level Commissioners, the clerk read the report of the general committee, from which it appeared that the engineers had estimated the cost of the sixteen syphons at 13,000*l.* or 14,000*l.* Eleven were already fixed, and five more would be ready by the end of the month. They had been tested three times, on the 30th of September, 18th of October, and the 25th and 26th, on which occasion they had acted to the utmost satisfaction: on one of the trials the water was reduced 2 feet throughout the level. The report was adopted.

A Glasgow Church of Fire.—The first fruits of the usual winter's harvest of flue and stove conflagrations in churches, took place on Sunday before last, at the commencement of the afternoon service in Eglinton-street U.P. church, Glasgow, when a cry of fire was raised, which speedily dispersed the congregation. The firemen commenced operations by tearing the rafters from the building, while a copious supply of water soon had the effect of extinguishing the flames. The accident, according to the local *Herald*, is believed to have arisen from the heating pipes getting over-heated and communicating with the timber (as usual) in their immediate vicinity.

The Metropolitan Railway.—The disappointment and delays with which the Metropolitan Railway had to contend at its earlier stages appear to follow it. The engineer of the line stated in his last report that everything would be ready for the opening on the 1st of October. Since that time there have been numerous excuses put forward as the reason for not opening the line to the public. Christmas is now spoken of. The experience we once had of a "pleasure trip" on the line (before completion) leads us to suspect want of management somewhere. Can it be, as reported, that the tunnel has been built too small for the carriages of the Great Western Railway?

The Opening of New Lambeth Bridge.—This new bridge has been opened for public traffic. Mr. Hodges, the distiller, did it by crossing to the Middlesex side on his new fire-engine. Having declared the bridge opened, there was an immense rush of people on to the bridge from both ends, and several cabs and light carts crossed. The vibration consequent upon the traffic is not so great, it seems, as was expected, and much less than that experienced on the Hungerford Bridge. The carriage-way is intended to accommodate any description of traffic. It is formed of square blocks of wood, laid down upon asphalte, and the interstices filled up with the same material, and is about 20 feet wide. The footways are paved with flagstones, and are about 5 feet wide. There is an entire absence of ornament about the bridge. The papers give a lengthened account of this bridge, from which we may quote a few particulars, although we have before given some account of it. It has been constructed by a public company, at a cost of not more than 45,000*l.*, or about one-sixth of the cost of any of the existing bridges. Its length is about 900 feet. Rigidity has been accomplished by means of a diagonal bracing, which connects the supporting girders with the cables of the bridge. So complete is this system of bracing, that Mr. Barlow, the engineer, was willing to have undertaken the building of the bridge even before the chains were thrown across the towers,—to build, in fact, a suspension bridge without having any cable to which he could suspend it. Now that the work is completed, and the power of the system of cross-bracing has been severely tested, the engineer and contractors express the most confident opinion that, even if the chains were to be cut asunder, the bridge would not fall. The cables, which are intended to carry the weight of the bridge, differ from any hitherto used in this country, though in the United States similar ones have been frequently made, and also at Fribourg, in Switzerland. They are of wire rope, and were manufactured by Messrs. Newall & Co., on the spot where they are brought into use. Along each side of the bridge there are fourteen of these cables, each cable formed of seven strands. These strands in their turn consist each of seven smaller strands, in each of which again are seven wires 3-10ths of an inch in size, and of the best charcoal iron. Each of these cables will bear a strain of forty-five tons to the square inch, while it is calculated that seven tons will be the maximum of pressure which can at any time be brought to bear upon them. The tested strength of the bridge is thus nearly six times in excess of that which will ever be really required. We are forced to express regret that it is not larger and handsomer.

Discovery of a Valuable Forest.—Intelligence has been received by the Dutch Government that Dr. Burnstein, while undertaking a scientific expedition for the Colonial Government of the Netherlands to the Molucca Islands and New Guinea, has made a discovery in the Island of Batjan which may lead to important results in the spice trade. In his ascent of the Sabella range, he discovered, at an elevation of from 2,600 to 3,800 feet above the level of the sea, a very extensive forest of nutmeg-trees, laden with fruit of unusual size and excellent quality. Dr. Burnstein's official communication reports that this nutmeg-tree forest extends over a very large tract of country.

Explosion on the Great Western.—Last Saturday the boiler of a locomotive burst about a mile and a half from Paddington, and killed three men. Some idea may be formed of the terrific force with which the boiler was rent asunder from this fact—that a piece of boiler plate, weighing at least three quarters of a ton, was shot across the main line into a carriage yard at a distance of about 100 yards. On entering the yard it struck a truck, carrying away some heavy iron railing that surrounded the latter; but this did not stop it. It proceeded till it met a train of waggons, two of which it smashed before falling to the ground. Attached to a corner of this piece of boiler plate was a wrought-iron bracket, weighing about 200lb.

Letters cut by Preston Prisoners.—A writer in *Notes and Queries* says,—In the interesting memoir (by his son) of *The Prison Chaplain; the Rev. John Clay*, we read how the completion and decorations of the prison chapel at Preston Gaol were due to the labours of the prisoners.

> "It was by prisoners that the panels in the roof were painted blue and spangled with yellow stars, or adorned with ecclesiastical devices; that the Creed, Lord's Prayer, Ten Commandments, and chosen Texts, were gilded on the wall on either side the altar."

This word *gilded* scarcely expresses the full extent of the prisoners' work in this particular. It is nine years since Mr. Clay pointed out to me the various items of interest in that prison chapel of which he was so justly proud; and my memory is somewhat hazy on this especial point of the gilding. But I well remember that Mr. Clay called my particular attention to the circumstance of each individual letter being *cut out* and then affixed to the wall; and that, in the majority of cases, this was done by prisoners so totally illiterate as not to know the letters of the alphabet, or how to form them, except by the patterns supplied to them, or how to fix them so as to make them "stand on their heels," without being amply directed. I also remember Mr. Clay making some very pertinent observations on the prisoners thus *making* commandments that they had so grievously broken. The circumstance of the *cut* letters for the Commandments, &c., seems to deserve a note.

The Yarmouth Schools of Art and Navigation.—The annual distribution of prizes connected with these schools has taken place in the town-hall, which was crowded by students of both sexes, as well as by the principal inhabitants of the borough. The aid afforded by the Department of Science and Art has been very considerable. While the fees have only amounted to 114*l.*, the Government aid has been nearly double that amount, being 209*l.* From a report just published by the Department, it appears that 848 pupils belonging to the public schools of this town receive art instruction, while from private schools there is not a single pupil. The report stated that, with respect to the School of Navigation, the classes had been better attended during the past year than at any time since its establishment: the Government Inspector had reported most favourably of the progress of the scholars; and the result of the examinations showed that the Yarmouth School was second only to Hull, and far above the other navigation schools. In the School of Art the attendance at the classes had been 89 as against 123 of the previous year; the falling-off being in the general day and evening classes. Of school-boys taught, there had been 845, as against 890 in 1860-61. Her Majesty's inspector, Mr. R. G. Wylde, had twice examined the school, when numerous medals and prizes were awarded. The general average results of such examinations throughout the kingdom shows that one in every fourteen students gains a prize; whereas, in Yarmouth, one in eight has done so. The treasurer's report for two years, from 1st of September, 1860, to 31st of August, 1862, showed the total receipts to be 449*l.* 9s. 5d.; while the expenditure had been 51*l.* 13s. 11d. less than the receipts.

EXHIBITION OF LOCAL ART AT LEICESTER.—There is to be an exhibition at Leicester Museum of Art local to the town and county. As the admission to the town museum is free, no charge will be made at the doors, and each visitor will be provided with a catalogue.

DAMAGING DRINKING-FOUNTAINS. — At the West Riding Magistrates' Court, recently, George Aspinall, of the Belle-vue public-house, Ashbrow, was charged with damaging the ladle of a drinking-fountain situate in Bradford-road, near the bottom of Brook-street. The magistrates ordered the defendant to pay the damage, and fined him 10s. and expenses. He ought to have had a little corporal chastisement. There are but too many Aspinals in London, as we frequently observe the fountains deprived of their cups; but we scarcely ever hear of the discovery and punishment of the idle scamps who thus deprive hundreds of their fellows of a refreshing draught of fountain water. The police might easily entrap some of them, and make an example of them.

THE CIRENCESTER DRAINAGE. — At a recent meeting of the town commissioners the estimate for the proposed drain from Gloucester-street to Watermoor was presented. The cost is stated to be 560*l.*, exclusive of compensation. A plan and explanatory statement, showing the advantages which must necessarily accrue to the owner of the abbey property, had been laid before Lady Carteret, with an appeal to her ladyship for assistance, on the ground that though benefited, she would not be called upon to pay town rates, the abbey being beyond the limits of the old borough. The steward of the abbey estates now sent a written reply to the memorial, stating that it was a matter of indifference to Lady Carteret, who did not feel called upon to bear any part of the expense. The population of Cirencester was at the last census 6,334; and, according to facts stated at the meeting, the present rate of mortality is about 22 in the thousand annually.

EXAMINATIONS FOR THE CIVIL SERVICE OF INDIA.—A copy of the printed regulations on this subject has been forwarded to us by the secretary to the Civil Service Commissioners, Dean's-yard, London, to whom all communications by intending candidates are to be addressed. From these regulations it appears that in June or July, 1863, an examination of candidates will be held in London for those desiring to go out to the several presidencies. Any natural-born British subject is entitled to be examined provided he transmit certain certificates to the commissioners on or before 1st May, 1863; but the number to be selected will of course be restricted within certain practicable limits for each presidency. An opportunity is now afforded by these regulations to many enterprising young men, without patronage or interest, of entering the civil service in India, which has heretofore been virtually closed to all such aspirants.

THE RUGBY WATER-SUPPLY.—The local board, at a special meeting held on the 29th of October, passed a resolution "to take steps to obtain a supply of water for the use of the town from the river Avon." At a meeting of ratepayers just held, resolutions were unanimously agreed upon to memorialize the local board not to go to the river for water, both on account of the great expense it would incur, and also on account of its unfitness for domestic purposes. It was urged that if Mr. Rammell's plan had been fully carried out, by extending the surface drainage (of which only one-half has been done), a superabundance of water would be obtained; because, in the driest seasons, the minimum quantity sent into the town daily was five gallons per day per head for the whole of the inhabitants; and also, that at least one-third of the houses, great and small, have not the water laid on. Mr. Hawkesley, it was said, estimates (he terms it a liberal estimate), that the whole of the cost of surveying the river for twenty miles down, and of a special Act of Parliament, besides compensation to mill-owners on the stream, and to the railway company, farmers, and others, together with the erection of engine-houses, &c., &c., will not exceed 7,000*l.*; but the ratepayers do not believe in this estimate. Their faith appeared to be entirely shaken as to his judgment, and reference was made to his theory of the artesian well which he caused to be sunk at the Water Tower, and which turned out a failure after some years' time, and 4,000*l.* had been sacrificed. The meeting appeared to make a stand against the river water being adopted; and if a special Act is applied for, they agreed that a petition should be sent to Parliament against it. This was the first meeting of the ratepayers as counteracting the doings of the local board since its establishment.

SANITARY CONDITION OF PRESTON: TYPHOID FEVER.—In describing the shocking amount of filth in many parts of Preston, we fully prognosticated the advent of fever; and we regret now to learn that our prediction is but too soon fulfilled, as typhoid fever now prevails in Preston; and when we consider that to the depressing influence of foul localities must be added the prostrating influence of want, it is fearful to contemplate the probable result.

THE HALSTED WATER SUPPLY. — The local Board having been specially summoned to determine the question of water-works, the two plans prepared respectively by Mr. Syrett, of Bury, and Messrs. Gotto & Beesley, of Westminster, were considered. Mr. Syrett's would cost 2,000*l.*; Messrs. Gotto & Beesley's, 4,007*l.* The chief distinction in the plans was that the latter provided a low level well and high level reservoir, in opposition to Mr. Syrett's high level well and reservoir combined After some discussion, Mr. Syrett's scheme, as sanctioned by the Government inspector, was adopted. It was resolved that Mr. Tanner of Chelmsford's tender for constructing the works for 2,372*l.* be accepted, upon condition that he guarantee to keep them in working order for two years after completion.

"THE CULTIVATION OF MUSIC DETRIMENTAL TO WORKHOUSE BOYS!"—Having been to some extent instrumental, as other members of the Press have been, in obtaining for poor workhouse boys and their elders the innocent and harmless recreation of a little music, it is incumbent on us to record, as we now do, that at a recent meeting of the Stafford board of guardians, the Hon. and Rev. A. C. Talbot, the chairman, moved, "That the juvenile band in connexion with the workhouse be broken up;" and urged in support of his motion that the cultivation of music was "detrimental to the boys," as it would unfit them for the pursuits in life which they would have to follow, and lead them into dissolute habits!! The motion having been seconded by Mr. Ginders, the Rev. E. Perry, in an eloquent address, moved, as an amendment, "That the band be continued, but not allowed to attend *fêtes* and other places of amusement as heretofore." The rev. gentleman, says the *Wolverhampton Chronicle*, after commenting somewhat severely upon the proposition of the chairman, and replying to the arguments adduced in its support, entered elaborately into the subject of musical education; and instanced the cases of two boys, who, previously to joining the band, were in a state of mind bordering upon imbecility; and who were now possessed of an average degree of intelligence; as convincing proofs of the absurdity of the idea that music had a tendency to unfit those who cultivated it for the duties of life. Another amendment was moved by the Rev. F. Bolton, that the matter be referred to a committee. This amendment was carried.

MANCHESTER ACADEMY OF FINE ARTS.—The annual meeting of the members of this academy has been held in the Royal Institution at Manchester. The Chairman said the Manchester Academy of Fine Arts had now entered on the sixth year of its existence, and the third since it became a sectional part of the Royal Institution. The report would show that both funds and members were increasing. The council were negotiating with an historical painter and able teacher in London, to deliver two lectures in character and fine art, and character in ornament. The annual report was then read. The council recommended that the exhibitions should be held at a later period. In a report presented to the council of the Manchester Royal Institution, the council urged that the exhibition in this city should be second only to the Royal Academy; and that, so long as the Liverpool Academy gave an annual 50*l.* prize, the Manchester Academy stood in an unequal position. The council of the Royal Manchester Institution had resolved to award two prizes of 25*l.* each, or the Heywood gold medal, for the best figure painting, and the same amount for the best landscape contributed by the artist. A communication had since been received from the council of the Institution, recommending the following pictures, with the approval of the council, to receive the award of the Heywood gold medal, or 25*l.*; viz., J. Noel Paton's "Dawn, Luther at Erfurt," for the best figure painting; and Henry Clarence Whaite's "The Rainbow," for the best landscape; both these pictures being the property of the artists. The selection was cordially approved by the council. A return was handed in, showing an average attendance of 280 per day; and that thirty-three pictures had been sold for 340*l.* The Art-Union pictures have yet to be bought.

NEW EXCHANGE BUILDINGS, BIRMINGHAM.—According to the local *Journal*, the tenders for these buildings (of which we have given an engraving) from thirteen builders were opened by the committee; and, being all informal and differing from the requirements of the committee, were all rejected. Messrs. Branson & Murray, who tendered, subsequently attended the Board, and made a tender on the conditions and in the form originally required. That tender, viz., 19,300*l.*, the whole of the works to be executed in Hollington stone, was acepted.

HARTLEPOOL.—Sir: Your correspondent (p. 777), writing of the houses, speaks of "one of them telling of the meeting of nations in its foreign title—the Voltigeur Tavern." It may be interesting to some of your readers to know that this tavern takes its sign from the race-horse Voltigeur, winner of the Derby, bred at Hart, hard by. On his conquest, every one in these districts, from its noble owner's housemaid and "Lanky Jack," the York "tout," to the peer and senator, pocketed winnings. One gentleman alone may I name, Mr. "Billy" Williamson, received and paid away a no less sum than 30,000*l.* to various persons near Hartlepool; being commissions on backing Voltigeur for the Derby! No wonder that horse is a household word.—EBORACUM.

TENDERS.

For a residence for Mr. G. Harmer, Buckhurst-hill. Mr. S. Hylson, architect. Quantities not supplied:—

Rentmore	£860	0	0
Carter	825	0	0
Cushing	820	0	0
Cornish	807	0	0

Accepted for Allerburn House, Alnwick — a new residence for Dr. Geo. Wilson. Mr. F. R. Wilson, architect:—

For Boundary Walls and Sewage Tank.			
R. & J. Wilson	£357	0	0
For Carriage Roads and Drains.			
Elliott	£341	6	0
For Water and Gas Mains.			
Wilkin & Dickman	£78	10	6
For House, Offices, and Stables.			
Yeaman, masonry	£1,692	0	0
Ross, joinery	1,168	2	9
Wilkin & Dickman, smiths and plumbers	260	0	0
Dixon, slating	130	0	0
Pickard, plastering	150	0	0
Robertson, glazing	107	0	0
For Entrance Gates and Lodge.			
Hudspill, masonry	£116	10	0
Ross, joinery	46	16	0
Wilkin & Dickman, smiths and plumbing, including gates	31	5	0
Burnett, slating	24	10	0
Pickard & Burnett, plastering	6	18	0

For new wing, kitchen, offices, and repairs to Borde Hill, Cuckfield, for Major M'Adam. Mr. E. A. Grunning, architect:—

Dancy	£1,710	0	0
T. Anscombe	1,369	0	0
A. Anscombe	1,275	0	0
Fish	1,258	0	0
Cheeseman & Son	1,240	0	0
Timewell	1,187	0	0

For the erection of a house, shop, &c., in Wood and Manor streets, Brompton, Kent, for Mr. T. W. Wood. Mr. T. H. Andrews, architect:—

Jennings	£1,209	0	0
Sampson	1,150	0	0
Naylor & Son	1,032	0	0
Mills	1,009	0	0
Pankhurst	1,001	0	0
Garrett	991	0	0

For erecting the first portion of the wall to inclose the ground for the new French Protestant Hospital at Victoria Park, London:—

I'Anson & Co.	£518	0	0
Mansfield & Co.	490	0	0
Turner	485	0	0
Burton	442	0	0
Brown & Robinson (accepted)	427	0	0

For additions and alterations to Mr. Cuff's premises, Charing-cross. Mr. W. Barron, architect:—

Hayward	£1,460	0	0
Howard	1,349	0	0

TO CORRESPONDENTS.

Fleas in Floors.—A correspondent asks what means he can adopt to destroy fleas in a new house. "They come up from between the boards by hundreds. The room is on the second-floor."

A. S.—Inquirer (will find some particulars as to ice-houses in a previous volume of the *Builder*).—R. R.—G. P.—Mr. E.—C. C. N. (Thanks: paragraph is given in same number).—C. H.—Neptune.—G. P.—F. T. D.—C. J. H.—C. B.—G. & K.—C. J. P.—J. L. (should be deducted).—Constant Reader.—W. J.—J. R.—W. P.—H. Liverpool (not published. Signature of note illegible)—R. M. L.—J. J.—F. B.—Quondam (in type).—J. H. (thanks).—W. A. H.

We are compelled to decline pointing out books, and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

NOTE.—*The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.*

Advertisements cannot be received for the current week's issue later than **FIVE o'clock, p.m.,** *on Thursday.*

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PORT and HARBOUR of BELFAST.—The Harbour Commissioners of Belfast having resolved to appoint a RESIDENT ENGINEER, to assist in superintending the extensive works about being carried out for the Improvement of the Port and Harbour of Belfast, request that all persons who may be desirous of becoming candidates for the appointment will lodge their applications and testimonials with the Secretary to the Commissioners, on or before 15th DECEMBER next. In making the election, a decided preference will be given to such candidates as may have had experience in similar works to those which are now in contemplation. The salary to be 300*l.* per annum.—Further particulars may be obtained on reference to the Secretary,
WILLIAM THOMPSON, Secretary.
Harbour Office, Belfast, 29th October, 1862.

WANTED, a COLLECTOR of RENTS, to reside on the property at the east end of London. Age not to exceed 35, and the strictest references to security will be required. No house agent need apply.—For salary and further particulars address A. B. care of Messrs. Paine & Layton, Gresham House, Old Broad-street.

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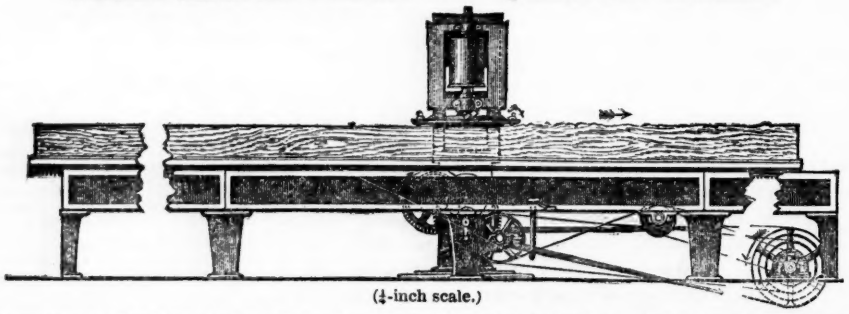

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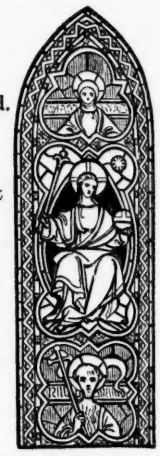

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